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The Telephone news

Bell Telephone Company of Pennsylvania,
Diamond State Telephone (Firm)

Library of

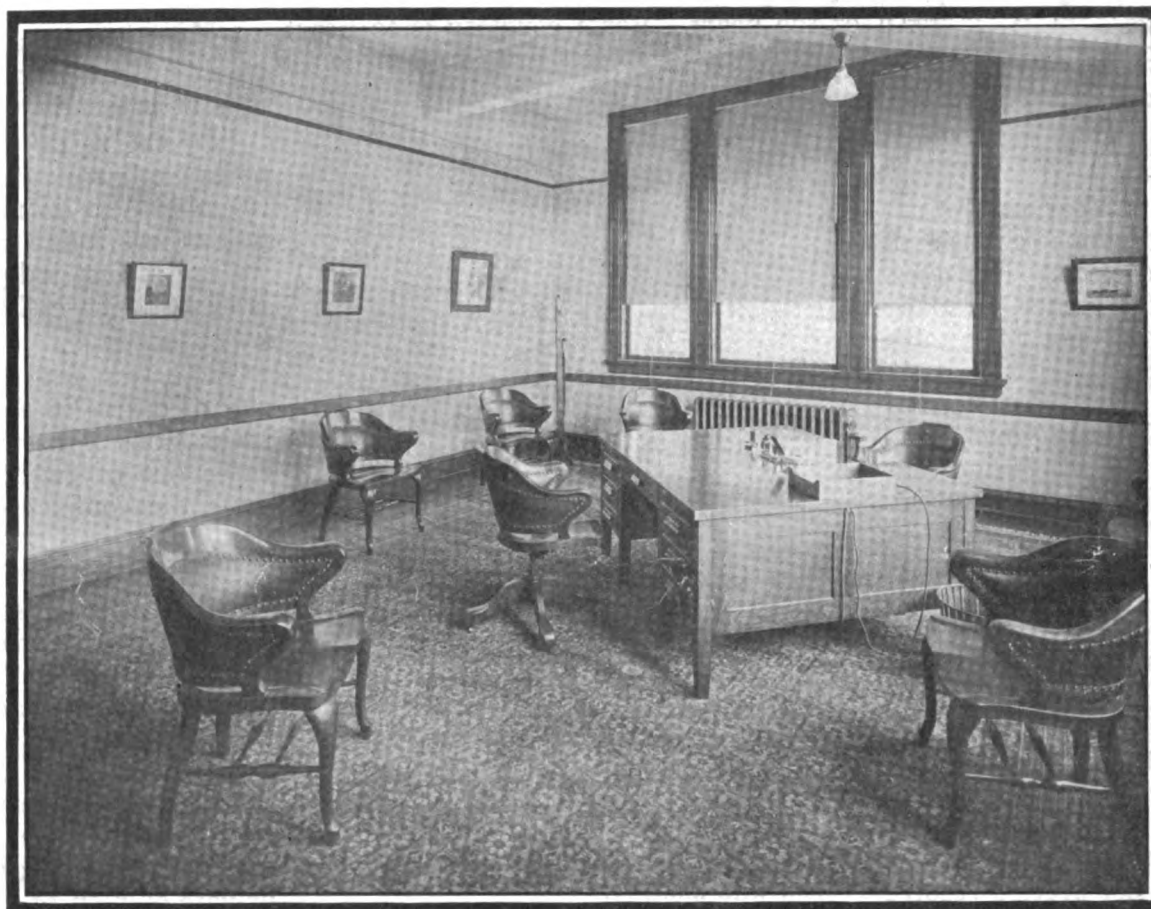


Princeton University.

THE TELEPHONE NEWS



Office of
M. H. Buehler
Auditor
1230 Arch St.,
Philadelphia



The
Bell Telephone
Company
of Penna. and
Controlled
Companies

P. L. Spalding, 2d Vice-President

At meetings of the Boards of Directors of The Bell Telephone Company of Pennsylvania, The Chesapeake and Potomac Telephone Company, The Delaware and Atlantic Telegraph and Telephone Company and The Diamond State Telephone Company, held December 29, P. L. Spalding was appointed Second Vice-President of their respective companies.

The Second Vice-President, under the supervision and direction of the Vice-President, will have charge of the Engineering, Commercial, Plant, Traffic, Supply and Rights of Way Departments, execute contracts and issue orders in connection with the operation of such departments in accordance with the general rules of the companies, and perform such other duties as may be assigned to him by the Vice-President or President.

Revenue Accounting

A Paper Read November 8 before The Cross Talk Club, Philadelphia, by P. O. Coffin, Auditor of Receipts of the Companies.

THE Accounting Department of The Bell Telephone Company of Pennsylvania and Controlled Companies is divided under two general heads:

1. Auditor of Disbursements in charge of the General Book Department.
2. Auditor of Receipts in charge of the Revenue Accounting Department.

In general the duties of the Auditor of Disbursements are to keep the general books of the Company, receive from the different departments in routine form the distribution of revenue and expense items and prepare the necessary reports for our operating officials and the American Telegraph and Telephone Company. This paper, however, deals with the second of these two divisions, the Revenue Accounting Department.

(Continued on Page 4)

Social Cliques as Telephone Prospects

J. H. CLUNE, District Manager, Butler, Pa.

IN every town of any size there is a so-called "Four Hundred." This particular group of residents may in some cases number only three families, while in other places four hundred members would considerably cut the roll. The number varies with the size and importance of each locality, but one thing is certain—the head of many representative business firms are included in that group. If there is a local telephone company operating in the community, some of these representative business men are sure to be among the stockholders. It is often-times quite difficult to get Bell service properly introduced to the households of such stockholders. But a certain plan has had excellent results in one Pennsylvania city of 20,000, and there seems to be no glaring reason why the same ideas, if properly carried out, will not increase the number of Bell subscribers in a city where a local telephone company has gained a foothold.

The plan had its inception in the brain of a

(Continued on Page 8)

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



The Chesapeake & Potomac Telephone Company
The Diamond State Telephone Company

U. N. BETHELL, President
W. S. PIERSON, Secretary-Treasurer
P. L. SPALDING, General Manager
F. H. BETHELL, Vice-President
M. H. BEHLER, Auditor
L. H. KINNARD, Commercial Manager
Managing Editor, E. H. HAVENS, 1230 Arch Street, Philadelphia, to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum, payable in advance

Vol. VII JANUARY 1, 1911 No. 1

A Variation

One who urges New Year resolutions nowadays takes a perilous chance of putting his auditors to sleep. The question is old and mooted. Hence, so many have decided it is better not to resolve than to resolve and fizzle. Others do not take the time to think about it. Those of the old school who still make vows to do certain things and to omit others find that it often works out somewhat in this wise:

The young unmarried clerk decides he is going to reduce personal expenses—and discovers, a few days before the Charity Ball, that moths have ruined his dress suit. And as reduction of expenses makes up about two-thirds of all resolutions, the married man too forms his. He *will* save money at home, and does—until the worst blizzard in years blows into town, when the coal pile dwindles crazily, as does his resolution. The stenographer makes her most precise resolve to eschew those perhaps appropriate but nevertheless undignified exclamations that will slip out when she hits the wrong key, and then finds herself ingloriously backsliding when she dates her first new year letter "1910."

Thus it goes.

Such things are discouraging. But isn't it just possible that many resolutions come to grief by reason of their very make-up? They are often porous. Worse, they frequently collide with physical laws or probabilities that refuse to be averted. And if there are those among us who habitually pile up on the rocks around about January 4th, and fail to slide off in calmer and safer channels within a day or two, let them look to a new brand of resolution.

Why not try for a purely mental improvement this year; a pleasanter disposition, for example? A resolution to be

more courteous is inexpensive and, at the same time, permits of homeopathic treatment. When anyone of us finds himself or herself deviating from the path of sunshine, let us act as our own doctors, and treat ourselves to a liberal dose of that same courtesy medicine—for courtesy is twice blessed, in that it gives joy to the recipient and returns a good, honest heart-warmth to the giver.

Try it; it costs nothing. And, above all, let us distinguish between the two kinds of courtesy, courtesy of form and courtesy of the heart. Form courtesy is to heart courtesy as toadstools are to mushrooms. Shun the imitation. It is easily distinguishable.

And a word to the man of mighty resolves. There are already some five thousand of us who are striving 'gainst the day when our mail will reach us addressed "Vice-President." A thousand or so more will only add zest to the race, so there is room for that number of new resolutions. But as we make them, let us not forget that little seed of courtesy which we can sow away in ourselves and watch grow to proportions that will make the cultivating effort distinctly worth while to us and to The Bell Telephone Company of Pennsylvania and its controlled companies.

Adapted

"The year returns and brings us the petty round of irritating concerns and duties. Help us to play the man; help us to perform them with laughter and kind faces; let cheerfulness abound with industry.

"Give us to go blithely on our business all this year; bring us to our resting beds weary and content and undishonorably."

The Worker

From Theodore Roosevelt's Address in Paris

It is not the critic who counts, not the man who points out how the strong man stumbles, where the doer of deeds could have done better. The credit belongs to the man who is actually in the arena, whose face is marred with sweat and dust and blood; who strives valiantly; who errs, and comes short again and again, because there is no effort without error and shortcoming; but who knows the great enthusiasms, the great devotions, who spends himself in a worthy cause, who at the best knows at the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who know neither victory nor defeat.

Thoughts by President Hadley, of Yale University

"The readiness to believe evil lies heavily on society and paralyzes it.

"If a man singled out some one occurrence of my life, came to me with a distorted account of it and then said that it was typical of my whole career and conduct, I should order him to leave the house; and so would you under similar circumstances. 'If we were equally ready to do the same thing in behalf of our friends when charges or insinuations are made behind their backs, modern society would be healthier and more efficient than it is at present.

"By the ready acceptance of these reports we harm ourselves no less than our friends. We do not realize to what extent others judge us by our beliefs. But we are in fact judged in that way, and it is right that we should be judged in that way.

"The man who has faith in the integrity of others in the face of irresponsible accusations is assumed—and in nineteen cases out of twenty justly assumed—to have the confidence in others' goodness because he is a good man himself.

"To-day as never before we are governed by public sentiment. The police regulations of business, the laws of society, the creeds of the church, have but a small influence over our action as compared with the effect of that indefinable thing known as public opinion, whether in matters of business, of politics or of religion. But the public opinion of the community is, after all, little more than the habits of private opinion of all the individual members of that community, transcribed as they are by word of mouth and by the printed page.

"If this public opinion believes in men and instinctively rejects slanders about them, we live in an atmosphere of faith. If it harbors such slanders and instinctively credits them, we live in an atmosphere of suspicion and cynicism. It does not make much difference what is the law or what is the creed of the church, in comparison with the question what is the habitual attitude of men toward their neighbors.

"Not only the man who originates slanders, but the man who idly repeats them, or even lends ready credence to them, is poisoning the sources of public opinion. One of the first things that is prohibited in warfare as soon as nations begin to become civilized is the poisoning of wells. Yet we too often allow in times of peace the poisoning of wells of public opinion by the light repetition of unfounded reproach against one's neighbor."

Telephone Society News

The Philadelphia Telephone Society.

1420 Chestnut Street

January 3.

Speaker: W. T. La Roche, Plant Superintendent, Philadelphia.

Subject: "The Efficacy of Routine Inspections and Tests."

The Telephone Society of Pittsburg

Carnegie Auditorium, North Side

January 10.

Speaker: L. H. Kinnard, Commercial Manager.

Subject: "Several Kinds of Appreciation."

This meeting, which will be the third held by the society, is to be an open one, and every male employee of our Company, The A. T. & T. Co. and the Western Electric Co. is invited to attend.

J. W. George, of The A. T. & T. Co. Plant Department, has been elected a director of the society, vice A. C. Terry, resigned.

The Telephone Society of Baltimore.

5 Light Street

January 4.

Speaker: H. Mouradian, Engineer.

Subject: "Some Mechanical and Transmission Problems."

A quartet will render an elaborate musical program.

West Philadelphia Telephone Society.

Lancaster Ave. below Fifty-second St.

January 17.

Speaker: A. DeB. Robins, Traffic Superintendent.

Subject: "Traffic."

All West Philadelphia male employees are invited to be present.

Northern Pennsylvania Telephone Society.

At the December 16 meeting, held in Leonard Hall, Scranton, S. E. Gill, Traffic Superintendent, read a paper on "Traffic Plans for 1911," which was illustrated by charts showing the methods adopted in studying the traffic problems. H. S. Urian, Traffic Supervisor at Scranton, also presented a paper, illustrated by charts, on "Local Methods in the Operating Room."

The Spare Pair Society

S. B. Williams, Engineering Department, read a paper December 21 on "Why?" The paper was so arranged as to arouse discussion on certain Plant and Engineering subjects. There was a generous attendance and thorough discussions of the points in question.

The Telephone Society of Rochester, Pa.

Employees of the New Castle District, Pittsburg Division, at Rochester, Pa., have organized a telephone society and called it "The Telephone Society of Rochester." The object of the society is to read and discuss papers and to receive suggestions and interchange ideas in connection with telephone work.

The first meeting was held in the office of the Plant Chief. All the employees of the Rochester sub-district were present.

J. W. Alexander, Rochester Wire Chief, was chosen Chairman pro tem. The following officers were elected: Chairman, J. W. Alexander;

Secretary, J. A. Laret; Executive Committee—Harry Hood, J. W. Alexander and J. A. Laret.

Meetings will be held on Friday evening of each week.

At a meeting held November 25 H. Hood, Rochester Plant Chief, read an instructive paper on "Magnetism." J. T. Tabra, a former employee of The National Telephone Company of England, gave an interesting talk on "The Telephone Society in England," and briefly outlined the work of the linemen and other Plant employees of that company.

At a meeting held on December 2 J. W. Alexander, Rochester Wire Chief, gave a talk, with drawings and illustrations, on "The Transmitter and Receiver."

Reading Plant School

Church Street

January 10.

Subject: "Construction of a 40 or 80-Wire Pole Line."

Reader: J. Sisk. Comments by Messrs. Hohl, Sanberg, Hirneisen and Thompson.

L. H. Kinnard, Commercial Manager, will address the members of the Telephone Society of New England, Boston, Mass., at the February meeting.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. An Easton salesman superseded a four-party line subscriber to a direct line and extension station by his knowledge of the method of temporarily O. K.'ing a broken loop.

Altoona District. The Altoona supersedure work, mentioned in our September 15 issue, is now complete. The total new revenue exceeded the estimate by nearly \$1,000. In nearly every instance the detail was excelled as here shown:

Class of Service	Estimate	Result
4-party increased to direct.....	300	321
2-party increased to direct.....		23
Direct reduced to new rate.....	106	106
P. B. X. trunks reduced to new rate...	15	15
Direct increased to P. B. V.....		3
4-party increased to P. B. X.....		1
Obsolete pty. res. increased to stdrd..	141	157
Extension stas. reduced to new rate..	160	150
Extension bells reduced to new rate..		54
Extension stations lost		8
New extension stations	50	113
New private branch exchange stations		12
New auxiliary trunks		2
New extension bells		9

Harrisburg District. During November the Waynesboro District gained 103 stations.

A Mercersburg bank cashier said a day or two ago: "A Mercersburg man who moved West some years ago returned to his old home and deposited with us several thousand dollars, awaiting definite information. Later he decided to go back to St. Louis, taking with him a New York draft for all of his money, which he deposited in a St. Louis bank. At midnight I was called out of bed to the public telephone. My friend told me that the day before he had deposited the draft in a St. Louis bank and that day it closed. He asked me to call the New York bank to stop payment. This I did by telephone early next morning, and within an hour received a telegram from New York stating that the draft was presented for payment an hour after payment had been stopped. So, you see, I know your service, and you can now place two telephones in our bank, one downstairs and one upstairs, on a direct wire."

In attempting to supersede a party line residence subscriber to better service a salesman

was told: "I can't afford it, but I wish you would see my grocer, for his line is always busy." The grocer was immediately superseded, and when the other subscriber was informed of it he rewarded the salesman with an extension station application.

While we do not as a rule agree to repair furniture, the assistance of a Harrisburg salesman in helping to put together an unglued Morris chair brought an order for residence service, together with three months' advance payment.

Common battery service at Carlisle was installed November 12, since which time 23 party lines have been superseded to direct-line service.

A rural salesman from Carlisle visited a Harrisburg store the other night, and while there overheard another customer mention telephone service. Our representative, Mr. Krall, asked for an introduction, and after some delay obtained a signed application.

Since November 5 our representatives—Jacobs and Goodyear—have obtained 72 applications for service at Mercersburg, 26 of which are for rural-line service.

Conduit work at Waynesboro is progressing satisfactorily. The first section will consist of 1,000 feet on Main Street and Potomac Avenue.

Reading District. A Shamokin Baptist minister is advertising locally a supposed telephone conversation in which he talks to those whom he hopes to draw to his mission meetings. A Bell telephone illustrates the advertisement.

Scranton District. A Honesdale rural subscriber who advertised 6 cows for sale stated that he received so many applications by Bell telephone that he could have sold double that number.

Another Honesdale telephone user received telephone orders for six suits of clothing to be sent to various residences on approval. He signed for Bell service at once.

When the Fire Company arrived on the scene of a very large fire which occurred in Carbon-dale recently they found they would be unable to get it under control. The Chief of the Fire Department stepped into the nearest Bell telephone booth to summon help from nearby towns. Within a very short time the Fire Companies responded, and they succeeded in getting the fire under control before it had destroyed the entire block. A representative of the Fire Department later called our Local Manager and complimented the Company on the prompt service received.

Williamsport District. A Williamsport subscriber, while trying to use Opposition service at Mansfield, Pa., found the toll lines busy each time. Finally the operator said she was too busy to take his name. He then used the Bell and in eight seconds was talking with his party.

Organization Changes.

Philadelphia

H. Peters, formerly Night Wire Chief, has been appointed Wire Chief, Dickinson Central Office.

J. G. Emmons, Switchboard Inspector, has been advanced to Assistant Wire Chief, Spruce Central Office.

A. Fleming, Switchboard Inspector, has been promoted to Night Wire Chief, Walnut Central Office.

W. C. Bair, formerly Central Office man at Wilmington, Del., has been transferred to Market Central Office, Philadelphia.

Pittsburg Division

F. L. Persons, Plant Chief at Steubenville, O., has been transferred to Marietta, O.

F. I. Blackburn, Repairman at Steubenville, O., has been appointed Plant Chief at that location.

Revenue Accounting

(Continued from page 1)

The Revenue Accounting of Telephone Companies has developed in the same ratio as the growth of business. In former days when the territory covered by any one of our Companies was comparatively small, when the local service rates were on an unlimited basis and when the amount of toll business was small, the Revenue Accounting problem was an easy one, but in the past few years the extraordinary increase in stations, the change in large cities from unlimited to measured service, the introduction of private branch exchange equipment, the various classifications of stations and revenue and the enormous increase in toll business have resulted in a condition which has made the problem of Revenue Accounting a very complex one. With this expansion of the telephone business the Revenue Accounting work has so increased in its detail, and its place in the general organization has become of such importance, that it is necessary to specialize in this work in order to obtain uniformity of detail methods, expeditious application of standard routines and provision for the proper check upon the other departments in carrying out the instructions of our Executive, and further to obtain that efficiency which in the Revenue work facilitates the collection of the revenue and prevents disputes and misunderstandings between the Company and its patrons.

Organization and Duties

In considering the organization of a Revenue Accounting Department, it is necessary to determine the number of accounting centres, in the location of which certain economies in conducting the business, local conditions and convenience to the public have to be considered. In the case of our own Companies, accounting centres

Revenue Accounting Department Toll Division

7th Floor, 1230 Arch St., Philadelphia

General Book Department

6th Floor

1230 Arch St., Philadelphia

have been established for the different divisions of our territory in the following cities:

Philadelphia—For about 132,000 accounts of the Philadelphia, Eastern Pennsylvania and Atlantic Coast Divisions.

Harrisburg—For about 55,000 accounts of the Harrisburg Division.



Pittsburg—For about 113,000 accounts of the Pittsburg Division.

Baltimore—For about 45,000 accounts of the Baltimore Division.

Washington—For about 22,000 accounts of the Washington Division.

In Baltimore, Washington and Harrisburg the Revenue Accounting work is in charge of Revenue Supervisors, who report directly to the Division Managers, while in Philadelphia and Pittsburg the Revenue work is supervised by the Auditor of Receipts, who also has indirect supervision over the other Revenue Accounting Centres in that all Revenue Accounting routines are prepared by him, and when properly approved are forwarded to the different Revenue centres for application.

The Revenue work in each accounting centre is divided into three general divisions, each in charge of a Supervising Clerk reporting directly to the Revenue Supervisor. These three general divisions are the Line Order Division, Toll Division and Bookkeeping Division, whose duties I will describe briefly:

Line Order Division

The duties of the Line Order Division consist of the handling of all work in connection with the checking, recording and filing of line orders and the preparation of station statistics. Contracts are received each day from the Commercial Department and checked with authorized rate circulars and instructions, a complete file of which is kept by the Line Order Division. Any contracts not in accordance with these rate circulars and instructions are returned to the Commercial Department for proper execution. After the contracts are checked and verified, they are arranged by line order numbers in a convenient file pending the receipt of completed line orders, except such contracts for which line orders are not required, which are forwarded immediately to the Bookkeeping Division for record.

Completed line orders are received each day from the Traffic Department, accompanied by a statement showing the daily net gain in stations



for each Central Office. The line orders are separated by Central Offices, according to the classification of "Business" and "Residence" stations, and the number of stations posted to a "Station Record" form under the four general headings, "Connected," "Disconnected," "Superseding" and "Superseded," each of these headings being further subdivided into our required classifications of "Flat City," "Measured Service," etc. The net gain in stations is balanced with the statement received from the Traffic Department, after which the work done as shown by the line orders is compared with the work required by the contracts and the dates of completion and call numbers endorsed on the contracts. The contracts and line orders are then forwarded to the Toll and Bookkeeping Divisions for record, after which they are returned to the Line Order Division, where the contracts are filed numerically.

Addressing Record.

All line orders which require changes in our Addressing Records are forwarded to the Addressographer, after which the line orders are returned to the Line Order Division, where all line orders are destroyed, except those covered by special agreements, such as for terminal loops and Morse circuits, which are filed with supporting papers, if any, in the current contract file.

Where a line order canceling an accepted contract is forwarded by the Commercial Department, the contract is withdrawn from the pending file and returned with the cancellation order to the Commercial Department. Line orders correcting previous line orders follow the usual routine, all records being corrected in accordance with the order. The Commercial Department is notified of any contract which has been in the pending file for one month and for which no line order has been received.

Contract Files.

Our current files contain only contracts which are in effect. Superseded contracts are withdrawn from the current file stamped "Change of Rate," "Change of Name," etc., as the case may be, with the date of change, and placed alphabetically in a Disconnected file. After a period of one year they are destroyed. Terminated contracts are removed from the current file, stamped "Disconnected" with the date of disconnection and placed alphabetically in the Disconnected file. On the tenth of each month the Bookkeeping Division forwards to the Line Order Division the ledger folios of all disconnected telephone accounts that have been paid or closed. The contracts covering these accounts are withdrawn from the file and destroyed and the ledger folios returned to the Bookkeeping Division for filing.



Bookkeeper's Standard Desk, Showing Loose-Leaf Ledger Compartment

**Addressograph
Room
Revenue
Accounting
Department**

**7th Avenue Building
Pittsburg**



Contracts covering accounts handled in the Auditor's Office in Philadelphia, where such accounts are recommended to be transferred to Suspense, are withdrawn from file and forwarded to the Secretary, but in other Revenue Accounting Centres they remain in the Disconnected file until the accounts have been paid or written off.

Station Reports.

Immediately after the close of each month's work station reports, showing the changes and net gain or loss in the various classifications of stations during the month and the total in service at the end of the month, are prepared and forwarded to our operating officials and the American Telephone and Telegraph Company. In preparing these reports the different accounting centres forward their division reports to Philadelphia, where they are combined in one report for the entire territory.

Toll Division

The duties of the Toll Division consist of the handling of all records of messages received from the Traffic Department in connection with subscribers' accounts, and the settlement of toll business with connecting companies. The Toll Division receives each day from the Line Order Division all completed and partially completed line orders and contracts from which file cards are prepared to be used for filing message tickets. These file cards contain all the necessary information required for preparing toll bills for the different classes of service. The Toll Division receives copies of all agreements for interline toll settlements with connecting companies and all instructions affecting toll rates issued by this Company and the American Tel. & Tel. Co., which are used for the purpose of rating and verifying rates on message tickets.

Local Message Records.

Local message usage of subscribers is reported by the Traffic Department on specified dates in the following manner:

For Message Rate Stations—Register Readings and Ticket Statement Forms.

For Public Telephones—Tickets.

For Zone Service Stations—Ticket Statements.

Register Readings and Ticket Statement Forms for Message Rate accounts are forwarded to the Bookkeeping Division, and Tick-

ets and Ticket Statement Forms for Public Telephones and Zone Service accounts are retained for the purpose of recording these charges on Toll Service Statements.

Toll Tickets.

Originating toll tickets, properly arranged, are received on specified dates from the Traffic Department and rated, certain tickets that have been rated by the Traffic Department being checked with the approved toll rate instructions. Tickets giving insufficient or doubtful information are immediately returned to the Traffic Department for investigation. Tickets covering Long Distance business are first used for preparing the Long Distance toll settlement, after which they are rearranged in proper filing order by the toll clerks. The Toll Division keeps a record showing each Central and Long Distance Office, date of tickets and message records and date received. Any delay in receiving tickets and message records is immediately reported to the Traffic Department or Long Distance Office, as the case may be, and if tickets and message records have been forwarded and not received, steps are taken to trace them. If they cannot be located after thorough investigation an estimated value of the lost tickets is forwarded with all papers in connection therewith to the Auditor for making claim for the loss involved.

Toll Service Statements.

After tickets are filed with their respective filing cards the charges are recorded on toll service statements, the billing period being from the 21st of one month to the 20th of the next succeeding month inclusive.

The posting of charges on toll statements is done both by hand and on Remington typewriting machines with Wahl Adding Attachments. The latter method makes a neater statement and is employed in preparing toll statements for the accounts in the Atlantic Coast Division. It has not been applied to the other divisions because we have been experimenting with a different machine and do not wish to purchase additional machines until the conclusion of our experiment. After the toll service statements are completed they are forwarded to the Bookkeeping Division not later than the 25th of each month, after which the toll tickets are removed from file, packed and forwarded to the District Managers one day previous to date of mailing bills, or at an earlier date if necessary. (Continued on next page)



Washington, D. C., Division, Revenue Accounting Dept.

Revenue Accounting (Continued)

Attended Public Stations.

Central Office tickets for messages from Attended Public Stations are recorded on a form and the total charges compared with the attendants' remittances. Statements showing the result for each day are forwarded to the Traffic Manager or Traffic Superintendent, as the case may be, who investigates any unusual discrepancies.

Monthly Settlements.

Immediately after the close of the month statements of toll settlement with connecting companies, including the American Tel. & Tel. Co., are prepared and forwarded to the respective companies.

Bookkeeping Division

The duties of the Bookkeeping Division consist of the recording of contract information, the keeping and billing of all Accounts Receivable of the Company and the preparation of revenue and other routine reports.

Contracts for telephone service are recorded on loose-leaf ledger forms ruled to carry accounts for a period of six years, a separate ledger form being used for each account.

Local Message Usage.

The Bookkeeping Division receives from the Toll Division not later than the 3d of each month Register Readings and Ticket Statements arranged in numerical call number order and showing the local message usage during the preceding month for Measured Service accounts. This usage is posted to the ledger accounts in a special column provided for that purpose and deducted from the number of messages to the subscriber's credit on the first of the month. In posting the monthly usage it is compared with that of previous months and any unusual variation reported to the Traffic Department for investigation. When a subscriber's local usage exceeds the number of local messages named in the contract, the charge for such additional messages is entered on the ledger account to be included on the bill to be forwarded on the first of the following month. At the expiration of a Measured Service subscriber's contract year where the subscriber's local usage is less than the number of messages named in the contract, the amount charged for local service is adjusted on the basis of the usage for the year and credit allowed in all cases where contract provides for such adjustment.

Preparation of Bills.

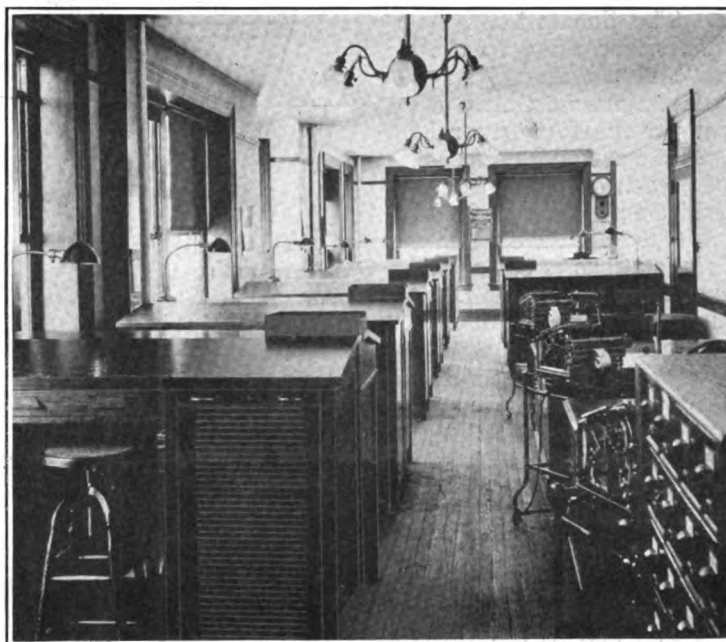
Before the 20th of each month the bookkeeper enters on the ledger account the local service charges to be billed in advance on the first of the following month. These local service charges and on Measured Service accounts, the number of local messages used during the preceding calendar month are then posted to bill forms on which have been printed, by means of an addressing machine, the subscribers' names and addresses. Bill Forms consist of the bill proper with two stubs separated by perforations. The first stub remains attached to the bill until it is presented by the subscriber for payment, at which time it is stamped with date of payment and detached, the second stub being handled as mentioned later.

Toll charges, as shown by toll service statements received from the Toll Division about the 25th of the month, are entered on the ledger accounts and bills, the bookkeeper at the same time also entering on the bills any unpaid balances, adding the charges and inserting the total amounts due.

After completion of the bills they are checked back with the ledger accounts and on the day preceding the last working day of the month the second stubs are detached. On the following day the bills are enclosed in outlook envelopes, on which postage has previously been placed, a "Balance Due" notice being enclosed and forwarded with each bill showing a "Balance Due" item of more than \$1.00, except in special cases where they are omitted upon request of the Commercial Department. On the last working day of the month the envelopes are run through a machine, which seals them at the rate of eight thousand per hour. The bills are then mailed to the subscribers and the second stubs forwarded to the District Offices.

Change of Contract.

In handling a change of contract when there is no change of name, or where a new subscriber agrees to assume responsibility for the original account, the superseded contract information on the ledger folio is canceled by ruling a line in ink through each entry and inserting the date effective in a column provided. The superseding contract information is entered on the next line below. When the superseding contract is received prior to the 20th of the month, a bill is prepared showing the adjustment charge or credit and forwarded at once to subscriber. If received after the 20th of the month the adjust-



Section of Bookkeeping Division, Revenue Accounting Dept.
Harrisburg

and forwarded with a transfer memorandum and bill to the bookkeeper in whose ledger the new call number is to be located.

Termination of Contract.

In handling a termination of contract, the word "Terminated" is stamped across the ledger folio and the date effective inserted in a column provided. Where only a portion of the contract is terminated, the contract information is canceled by ruling a line in ink through each terminated item of the contract and the date effective inserted. Where there is a termination of the entire contract the line order is accompanied by a toll statement showing charges for toll messages from the first day of the current toll billing period to the date of disconnection, and for each contract requiring adjustment of the local message usage a record of this usage from the first of the calendar month to date of termination. The local service charges on the account are adjusted to date of termination and a final bill showing all unpaid charges is prepared and forwarded to the subscriber at once. Where the final adjustment of a subscriber's account results in a credit balance a voucher is prepared for the amount of refund. The voucher, after examination and verification, is forwarded to the District Manager for payment.

Suspense and Uncollectible Accounts.

Suspense accounts include all disconnected telephone accounts remaining unpaid at the end of the third month following date of disconnection. The Commercial Department forwards to the Revenue Accounting Centres not later than the end of the third month following that in which disconnected a list of all such accounts remaining unpaid. The ledger folios of these accounts are stamped "Suspense" and transferred to the Suspense ledgers, where they are filed in alphabetical order by Exchanges.

ment charge or credit is shown on the bill of the 1st of the following month.

Where there is a change of call number, if the subscriber does not assume responsibility for unpaid charges against former subscribers, the superseded account is handled as a termination of contract and the superseding contract as a new connection.

Where there is a change of call number if the account is to be transferred to another ledger the folio is removed from the ledger



Bookkeeping Division, Revenue Accounting Dept.
7th Ave. Bul.

Each Revenue Accounting Centre receives from the Commercial Department, and in Philadelphia from the Secretary also, a monthly list of accounts recommended to be written off as uncollectible. These accounts are credited with the amounts recommended to be written off and are then transferred to the closed account binders. Where a former subscriber, whose account has been written off as uncollectible, agrees to pay the amount due in full or in part, the ledger folio is transferred from the Closed accounts to the Suspense accounts or, if new service is contracted for, to the Current accounts. Charges are entered on the account according to the agreement and taken up as credits to "Uncollectible."

Cash Collections.

Each day's collections of cash are reported by the District Managers to the Revenue Accounting Centres on Summary Collection Reports supported by paid stubs. A summary of cash collections by ledgers is prepared from the paid stubs, and the daily total of this summary is used to verify the total of Summary Collection Reports for each day. After verifying the Summary Collection Reports the paid stubs are arranged by ledgers and distributed to the bookkeepers.



Revenue Accounting Department, Pittsburgh

Summary of these Summary Collection Reports is forwarded to the Auditor each day for use in checking the Treasurer's Cash Books.

Credit Memoranda.

Credit Memoranda received from the Commercial Department are checked with the authorized instructions as to proper approval. Bills for toll messages on official business of the Company, when approved by the head of the department in which the calls originate, and any other authorized recommendations for credit are considered as Credit Memoranda. Credit Memo-



Bookkeeping Division, Revenue Accounting Department, 8th Floor, 1230 Arch Street, Philadelphia

randa are arranged by ledgers and forwarded to the bookkeepers, who post the amounts on the ledger accounts, with a brief notation of the reason for allowance.

Trial Balances.

After all charges and credits for the month have been posted on the ledger accounts the balance, if any, on each account is carried forward to the next monthly section of the ledger account. These amounts are listed on an adding machine, and the bookkeeper then prepares to balance his ledgers. This is done by adding to the total amount of the unpaid balances on the first of the month the total of all charges made on the accounts during that month and deducting the total cash and other credits, the resulting difference of which must necessarily correspond with the total amount of the balances unpaid at the end of the month.

The charges during the month as shown by the ledger accounts are listed on adding machines according to the proper classification of Revenue. After all ledgers have been balanced, the charges and credits are summarized and used in the preparation of various reports made to the Auditor of Disbursements for the necessary entries on the general books of the Company.

Improvement in Revenue Accounting Methods

There are about 365,000 subscribers' accounts in our combined territory, and the enormous detail necessitated for keeping an individual account with each subscriber requires a very large clerical force in the Revenue Accounting Department to handle the work properly and entails considerable expense, but as it pays to keep the Revenue work up to the highest standard of efficiency possible, we believe that we are conducting this work as economically as our present conditions will allow.

In order to obtain efficiency in Revenue work there must be uniformity of methods, and uniformity of methods necessitates routines for the guidance of the force. In June, 1909, we began a complete Revenue Accounting Routine, which was finished about April 1, 1910, and applied in the Harrisburg and Pittsburgh divisions on April 1 and July 1, respectively, of this year, when the Revenue work in those divisions was placed on the standard basis. This routine is now in effect in all of the different divisions of our combined territory.

Mechanical and automatic features in the saving of manual labor, although they have a larger field for the exercise of ingenuity in the operat-



Section of Toll Division, Revenue Accounting Dept., Pittsburgh

ing branch of the business, have been introduced into the Revenue Accounting Department with a consequential reduction in expense. For instance, the Addressing System saves thousands of dollars in the printing of bills, stubs, ledger heads, etc., which was formerly done by hand, and has relieved the bookkeepers to such an extent that they are able to take care of a much larger number of accounts. The change from solid-bound ledgers to loose-leaf ledgers with automatic locks, the outlook envelope, the use of adding machines for taking off revenue classifications, the introduction of adding attachments on typewriting machines and the adoption of standard bookkeepers' desks with iron pedestals for filing ledgers are some of the innovations that have been introduced to obtain cheaper and better methods of accounting without in any way lowering the standard of the work. Along this line we have given considerable thought, especially during the past year, to the improvement of methods whereby the cost of Revenue Accounting work could be reduced and have maintained a sort of experimental department for the testing of ideas which we believed were in the line of progress. From these investigations we have obtained some good results, among which has been the development of a system of mechanical Revenue Accounting which we are going to install for certain accounts in the near future.

As mentioned before, we have a complete routine for the guidance of our detail force. We do not, however, think that this is the best routine possible, as we are continually finding out that it fails in many respects, but these failures admit of certain amount of extenuation, in that it is the first printed Revenue Accounting routine that we have had. No routine, however, is permanent, and as we rid ourselves of antiquated methods and settle upon a better practice under a new routine, we must not fix it as a finality nor turn a deaf ear to suggestions of alteration, and we will appreciate all the criticism of our present routine that the other departments are willing to give.



"Time is the greatest element in the business world; the telephone is the greatest saver of time."





Social Cliques as Telephone Prospects

(Continued from Page 1)

Bell Manager who was engaged at the time in making a rather careful comparison of prospect cards. The cards had been obtained by a systematic canvass of the city. Each salesman engaged in the canvass had secured, wherever possible, a list of social acquaintances called frequently over the lines of the local company. While scrutinizing these cards the Manager could not but notice a striking similarity in the information from women who frequently met each other on the same social plane. In one case, out of eleven women who furnished information, only two gave names not mentioned by the other nine. This was enough to satisfy the Manager that the nine women were quite chummy and might be said to form a social clique. And to the Manager the possibility of telephone development among members of a social clique became apparent.

One of the best telephone salesmen in the District was assigned to the work, and, armed with the names of the clique members, he started on a round of calls. The salesman would simply state that some time had elapsed since the local company became popular and that during this interval the Bell system had made wonderful strides in the community. The prospect was then told in a straightforward manner that it would be a matter of satisfaction for the Company to install a telephone for a short time just to demonstrate Bell's progressiveness. When the caller began to show an interest in members of the prospect's clique the one being interviewed usually recalled something about the bridge or reading club, and the salesman knew he was on the right track. At first the woman seemed well satisfied with the service of the local company and the salesman knew that if she remained so there was no chance for him. But he usually explained that the other women in her set would be given the opportunity to have the service demonstrated, and it was not long before she agreed to join the circle. But the subject of a contract was not brought into the discussion.

During the next few days the salesman made a second round of calls. He explained his presence by saying that he had come to select the best possible location for the telephone. At the same time an application blank with a free service clause was produced. The salesman frankly stated that the contract was for use in keeping our record of the installations, but at the end of the free service period it would become binding for one year, unless the trial subscriber had notified the Company to the contrary.

In the case of the first clique to which the proposition was broached, nine telephones were installed in homes of the members within two days. Seven of these nine members became permanent subscribers at the end of the trial period.

After the installations were completed, the salesman responsible for them made a third round of calls. This time he presented each of the trial subscribers with a neatly arranged booklet containing the names and Bell telephone numbers of those women who composed that particular clique. The booklet also gave the names and Bell numbers of relatives, physicians, merchants, police headquarters, fire headquarters, society editors and the offices of those of the husbands who had Bell telephones. The salesman requested several times that the freest possible use be made of the Bell wires.

Within a very few days, salesmen in the business portion of the city frequently heard comments among the dealers. These remarks were to the effect that it seemed as if all the best buyers in the city were using the Bell service for their shopping. This condition was a direct stimulus to the business men, and in turn each of them began to notice that the Bell people were doing things. One of the dealers kept a record for two weeks and found that he was doing more business over the Bell than he had formerly done on that and the local lines combined. The telephone manager was not greatly surprised when this dealer called a salesman and signed an application for a higher grade of service. But by this time the interest among the clique members was at its height. One day two women stopped at the telephone office while making a shopping trip.

"We are using your telephone constantly," said one of the women, "and it seems so like an imposition that I am going to have an application signed for a year."

The Manager explained that there was no obligation for the service that had been rendered.

"Well, I have always wanted Bell telephone service, but it was only yesterday that I succeeded in convincing Mr. H— that your Company gives the better service."

During the time that the clique plan was in effect, careful records were kept by the Traffic Department and it was plainly evident from these that some of the business lines on a party basis were badly crowded. So salesmen, provided with this information, went directly to the dealers. Many applications were obtained calling for higher grades of service.

Contrary to what might have been expected, the increased traffic due to the trial service did not slump at the termination of the demonstration period. This is explained by the fact that new applications were being signed at the rate of 100 a month in this particular city.

Then there are always a certain number of stragglers in any social clique, and it was found that people of this type would often "jump in" and take the service in place of regular members who for some reason or another had dropped out.

It was seen by the manager, who originated the plan, that the aim should be to make the trial subscribers feel the real disadvantages of being

without Bell service. When the plan was started an air of general satisfaction seemed to have enveloped the subscribers to the service rendered by the local company. The Manager knew that Bell service was better and that the only way to build up the business was to fully demonstrate the superiority. He knew that the marked advantages of Bell service would create legitimate dissatisfaction among the other company's subscribers, for such a state is bound to arise when one sees his neighbor getting more for his money.

"Well, the Bell is fine for long distance, but we are interested in the local company," was the sort of a greeting usually extended to the salesmen engaged in the clique work. But the demonstration to groups of people in the same social standing convinced the clique members that the Bell really was the better. The dissatisfaction among opposition service users came and brought the anticipated results.

While the clique plan was being carried out the Manager could not help seeing the scheme would create not a little talk, but the large amount of publicity gained was something that had not been hoped for. Within two weeks it seemed as though everyone in the city was talking telephone. A new issue of the directory was due at this time and when it came out the names of the new subscribers started neighborhoods talking.

One man who had been a member of the town council for two terms hailed the Manager on the street one day.

"I never had a chance to get back at the organizers of that local company," said the man, "but now I am on my way to their office to tell them to take out the telephone."

What might be considered as the culmination of the local interest in the Bell company was reached when the members of the Wednesday Reading Club held a session of which "Telephony" was the subject. Several papers treating of the telephone were read at this meeting and most of the data was gathered from the Bell Manager and his associates.

One of the first trial subscribers became quite interested and called several times at the central office for additional facts about the telephone. Among other things, the Manager loaned her a copy of THE TELEPHONE NEWS containing the article on "Early Telephony," by Alexander Graham Bell. This article proved to be exactly what was desired. So the woman read it before the meeting instead of trying to arrange one herself. At the meeting the woman took occasion to remark that she had no idea that Bell was the inventor of the telephone and that the system of the same name was such an extensive enterprise.

It happened that a federation of women's clubs was held in a city of central Pennsylvania not long after the meeting of the Wednesday Reading Club, and the latter sent as a delegate the woman who had read the Bell paper. The telephone had proved to be such an interesting topic at the home meeting that the delegate made it a point to suggest to the federation the idea as a good one to be adopted by other clubs. This woman also took occasion to suggest any Bell central office as a most valuable source for gathering information for papers of the sort recommended.



Philadelphia Division

R. C. MASON, Division Correspondent

The new Philadelphia Division rate books have been distributed.

Down-Town District. T. J. Hird, a down-town (Philadelphia) residence and business subscriber, who has moved to Scranton, stated that he signed a Scranton *Bell* application on account of the many courtesies shown him by our Philadelphia office.

The Lehigh Valley Railroad is advertising: "The telephone is superseding the telegraph. There are over 400 operators, dispatchers, tower-men and track watchmen on the alert * * * every time you travel to Buffalo on the Lehigh Valley. And this perfected system is made even more perfect, irrespective of expense, by the gradual introduction of the telephone in place of the telegraph for train dispatching."

On December 19, 39 of the Down-Town salesmen were given a dinner at the Continental Hotel, Ninth and Chestnut Streets, in appreciation of having made the 1910 estimate. Those who had shown especially good supersedure ability as well as station record work in South Philadelphia received prizes. Four of the men entertained with music, and short talks were made by several of the guests.

Gaul

North Philadelphia District. On account of illness a residence station was O. K.'d in Frankford (Northeast Philadelphia) just four hours after the request had been received.

P. B. X. service will be installed for a firm of produce dealers on Germantown Avenue with stations in their separate stores. Six years ago this firm began business with a guarantee public telephone.

Garwood

West Philadelphia District. A party line subscriber complained of hearing music on his line. Investigation showed that the line was crossed with another party. Although that defect was soon remedied and there was no other subscriber served by the same line, the salesman succeeded in changing this man's service to direct.

Property has been purchased adjoining the Preston central office building, 10 North Preston Street.

Bissex

Doylestown District. A local paper devotes a column each day to "What the People Say." In a recent issue one merchant, whose name was quoted, remarked about the large local residence development and the consequent saving.

Damage done by a broken trolley wire at Yardley proved Miss Johnson to be an operator with quickness and presence of mind. The Plant representatives from Newtown, Trenton and Yardley O. K.'d the trouble, which affected every station, within a few hours.

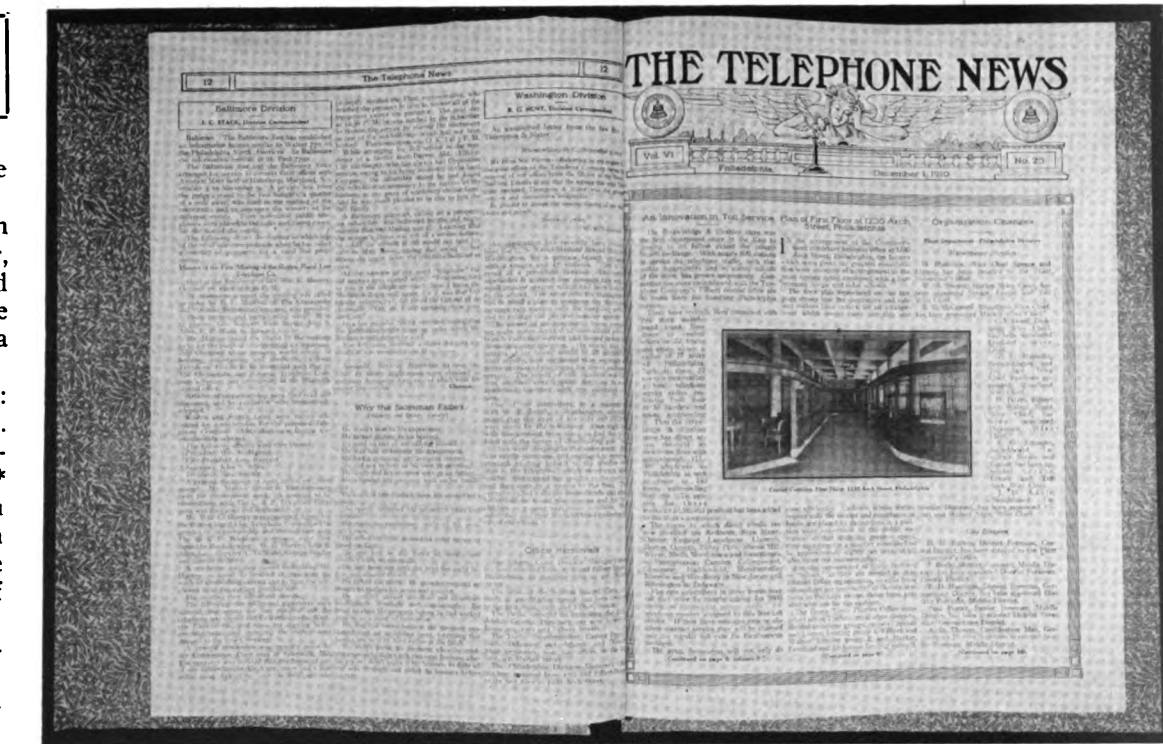
A Philadelphia man who planned to purchase a farm near Doylestown wrote first to our local office to know if telephone service could be installed at that location. Both the prospective buyer and the advertiser said that the sale depended upon the above possibility.

After over 6 years of calls, at intervals, M. S. Cogan, our salesman, "signed" a produce firm in Doylestown for Bell service.

George Callanan, our Bristol representative, has obtained a P. B. X. application for 3 trunks and 24 stations from W. H. Grundy & Co., worsted manufacturers and one of the oldest subscribers in that town.

Hennessy

Main Line District. D. B. Burt, a salesman, obtained an application for a No. 1 private branch exchange of 7 stations for the Lancaster Inn, at Bryn Mawr, under odd conditions. When he



Binders for The Telephone News

Five hundred Shipman Binders No. 134 have been placed in stock at the Western Electric Company's offices awaiting requisition from the Plant, Traffic and Commercial offices. It is requested that these be ordered at once and that complete files be kept beginning with the January 1 issue. [Binders are chargeable to 401-14.]

In connection with this it may be mentioned that arrangements have been made to bind and furnish a limited number of copies of the 24 issues which appeared in 1910 at cost. Upon request this volume, attractively bound in cloth with black leather back, will be furnished to employees of The Bell Telephone Company of Pennsylvania and controlled companies at cost—namely, \$1.50 for binding, plus the delivery charges to points outside of Philadelphia.

called to keep the appointed interview he found the prospect hanging curtains. Undaunted, he offered to assist, and during the work explained the system thoroughly.

A Narberth subscriber, who owed for former service, wanted a station installed at a new location immediately. Arrangements were made for payment and the signing of the new application at the down-town office, where the subscriber then was. At 2 P. M. all arrangements had been completed, and at 4.30 the subscriber was receiving service at the new location.

Young

Norristown District. The snow storm nearly prevented a recent meeting of the Norristown Town Council a few nights ago. At 8 P. M. there were only 12 members present, 5 too few for a quorum. The telephone aided in bringing 10 more, and in half an hour the meeting proceeded.

Perhaps one or more of the above mentioned members were members of the Gas Company of Montgomery County. By an odd coincidence this letter was received a few days later:

NORRISTOWN, PA., December 8, 1910.

W. C. Hartranft, Dist. Mgr., The Bell Telephone Company of Pennsylvania.

MY DEAR SIR:—

Last night I had occasion to call seventeen of our local business men. It was necessary to postpone a meeting of the Board of Managers of the Chamber of Commerce, and I wished to notify all before seven o'clock.

By the excellent service of your system I was put in communication with sixteen of the parties in 26 minutes. The fifteenth call did not answer, but, about fifteen minutes later, the operator inquired whether or not I still wanted to communicate with Mr. ———, which I did.

Being a "stickler" for "good service" in the conducting of our own business, I was very much impressed with what seemed to me the phenom-

enal possibilities of the telephone, augmented by the thorough training of the operators.

Yours very truly,

GAS COMPANY OF MONTGOMERY COUNTY.

H. H. GANSER,

Superintendent.

Beerer

West Chester District. An entire line of opposition subscribers in Kennett Square were changed recently from 4-Party \$12 with fifteen miles radius to "Bell" service. Three were changed to 4-Party \$24 and the other to Direct \$30 with the radius of Kennett Square, Mendenhall and Unionville. Salesman Townsend obtained the applications.

The Silicia Stone Works at Malvern changed from direct line to monitor board service with 5 stations.

An order received in the West Chester Plant office was marked "Rush." One of the family where the station was to be installed was dangerously ill. The men received the order at 7.30 A. M., and the work of dropping loop, running outside wire and installing was completed by 8.30 A. M.

Greenfield

Ambiguous

An Actual Occurrence

Long Distance Operator: "Is this Mr. Johnson?"

Mr. Johnson (slightly intoxicated): "Yes, this 'sh Mist' Johnson."

Operator: "You were calling Mrs. Johnson. I have her on the line."

Mr. Johnson: "Jus' a minute, li'l girl! 'S mistake somewhere; my wife ain' no tight-rope walker."

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Butler District. A Butler druggist, named Bell, used a Bell desk set to decorate his window for Christmas. A card read, "Bell uses the Bell;" "Telephone Your Drug Needs to Bell." The joint advertisement netted the druggist a number of new customers and our Company three unexpected applications for residence service.

The joint exhibit of the Western Electric Company and our Company recently made at the convention of the State Grange Association in Butler excelled all competitors, both as to appearance and equipment exhibited. The booth was decorated by an expert, and palms were furnished by local florists. Both Bell and Western Electric representatives submerged the commercial spirit sufficiently to show the visiting Grangers that we could be hosts as well as constant salesmen. The guests were invited to use the Bell for local calls. Easy chairs in the Bell booth were occupied most of the time by the Grangers' wives and daughters, while men in charge of the display explained the efficiency of Western Electric equipment by actually demonstrating it over Bell lines. Advertising booklets were distributed and the exhibit developed a number of rural prospects. Bell blotters liberally circulated among the hotels in Butler, during the week of December 17, helped to augment the percentage of calls, local and long distance, handled by the Traffic Department. One thing that met with the agriculturists' instant favor was the booklet containing about twenty testimonial letters from prominent Grangers who are users of Bell service. **Stewart**

Greensburg District. A No. 3 traffic agreement has been signed with the Windber Telephone Company, operating over 400 stations from exchanges at Windber, Pa., and Dunlo, Pa. This has already strengthened our position in Johnstown, Pa., and we have signed a number of subscribers at the latter city as a result.

Ebensburg, with about 2,000 population, has 237 Bell telephones, to which will be added 25 signed for between December 1 and December 10.

R. J. Cavanaugh, an Ebensburg salesman, won a hat offered by the Greensburg District Manager for the highest net new business record for November. **Hugus**

New Castle District. The Plant Department is stringing two new circuits along about eight miles on the Youngstown road, which when completed will give service to 15 new subscribers, to be connected with the New Castle exchange.

Early December 13 the P. & L. E. station at New Castle, Pa., was almost destroyed by fire. Temporary quarters were soon found in a passenger car, in which a Bell telephone was installed by the Plant Department in 18 minutes.

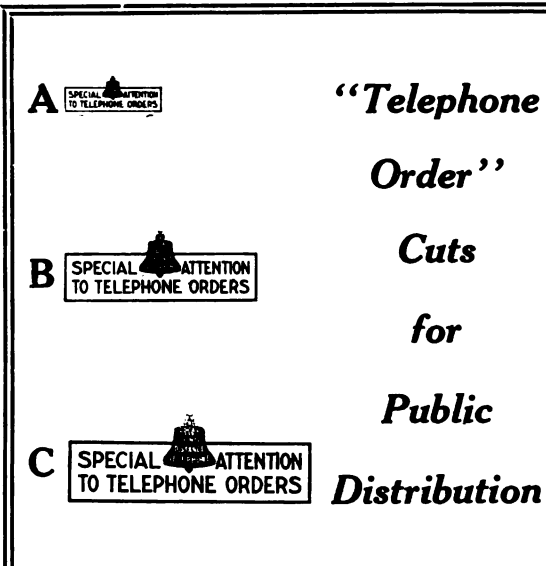
A new section of switchboard has been installed at New Castle.

Two direct line telephones have been installed in the city building, New Castle, Pa., for the use of the Y. M. C. A. during a ten days' campaign. Signal Numbers 100,000 and 100,001 were requested by the Association and approved by the Traffic Department, to be used as advertising, since the aim of the campaign is 100,000 in everything. **Meyer**

Pittsburg District. The most extensive series of newspaper advertisements ever placed in Pittsburg has just been completed. This series consisted of seven separate advertisements, each containing 700 agate lines. They were of the educational style and attracted attention in all parts of the city.

James H. Collins' booklet, "Selling Over the Telephone," is being used in Pittsburg as a text book for department store salesmen.

Cards bearing the inscription, "A Christmas Suggestion—Install a Bell Telephone," were used during the holidays in connection with drug store windows, decorated for the purpose of advertising the fact that orders would be taken by telephone. Wreaths and desk sets were the chief attractions in these window displays.



"Telephone Order"

Cuts for Public Distribution

Newspaper and other advertisers, as well as all business people with letterheads or any kind of printed matter, will doubtless be glad to use cuts like those here shown to increase their incoming telephone business.

It is thought that these will be more popular than the small bell cuts now being used in some parts of the territory.

The Publicity Department will furnish these cuts in any quantity upon recommendation from the Division Manager. The code letters should be used to indicate the sizes desired.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

The Atlantic Coast Division rate books have been distributed.

Atlantic District. A new subscriber in Atlantic City after making her first call left the receiver off of the hook. The testing table operator called and asked her to hang the receiver up and she said she would. The line remaining in trouble, an inspection was made, and it was discovered that the subscriber had driven a nail in the wall and hung the receiver on it! **Avis**

Camden District. Between January 1 and December 10, 1910, there was a net gain in Camden city of 889 stations, making a total (Traffic figures) on December 10 of 3,538. The majority of these new telephones were placed in residences.

In a house to house canvass a Camden salesman called at one residence and met with a "We have no need" refusal. Thinking that the woman was perhaps too busy to discuss the subject, he noted the address and reply in his week's call back page. He then called next door and learned that the first prospect had had a misunderstanding with the telephone people regarding rear property work. After obtaining full information from the office he called again, overcame what might have been a stormy interview, and obtained an application for service. **Croxtan**

Dover District. A fire-alarm system has recently been installed in Dover, consisting of 6 Moore loud-ringing double gongs installed in 6 firemen's homes, also an eighteen-inch automatic

striking gong located on the front of the fire-house. When the operators receive an alarm from a subscriber's telephone, two switches controlling both sets of bells are thrown into contact from the operating room. This system has worked to such good advantage that in the case of all the fires for the past month or so, the firemen have reached the fire-house before the main bell in the tower has sounded the alarm, and thus saved many valuable minutes. It has been the custom for someone to ring the large bell in the tower and thus notify the public and firemen alike when there is a fire. The local company is a volunteer one, and no one is constantly on duty.

At the Delaware State Corn Show, held in Dover December 8 and 9, the Western Electric Company had an exhibit of telephone apparatus used in connection with rural telephone lines. Our Company also delivered a large number of folders for developing traffic and for new and additional service. The show was largely attended by farmers interested in the production of more and better corn, and the most noteworthy fact was that there was not a single farmer who attended the show who did not have a telephone and some had two. It would therefore seem that scientific farming absolutely requires telephone service, to be successful.

H. W. Carty, agent at Salisbury, Md., has obtained an application from a large lumber firm in that town for No. 1 private branch exchange service with 2 trunks and 5 stations. This is the second branch service sold in that territory. Mr. Carty also obtained the first application.

A Lewes, Del., subscriber asked the operator, a few days ago, what the December birth-stone is. He seemed very anxious to get the information, evidently intending to kill two birds with one "stone." He wanted to be advised as soon as the operator could find out, regardless of the hour of the day or night. At four o'clock the next morning he was called and helped out of the difficulty. **Prince**

Trenton District. A Medford, N. J., farmer, from whom permission was sought to set poles in order to serve a neighbor, held out for a special contract for service in his own home. After four months of waiting, it happened that telephone service at another neighbor's aided in saving the home of the first man from total destruction by fire. He granted the right of way and signed for service immediately after the fire was extinguished. **Brown**

Wilmington District. The Wilmington *Evening* publishes the following from *Harper's Bazar*:

"My small son did not return at the regular time one day while out with a maid. The thought terrified me that in case of an accident there would be no way of identifying him to notify me.

"The next morning I cut pieces of wide tape, on which I wrote, very clearly, his name, address, and our telephone number, in indelible ink. I sewed one of these pieces to each of his underwaists, in front where it could be plainly seen."

Chambers

A Tomb Telephone

The death of Mary Baker Eddy, founder of Christian Science, which occurred in December, has attracted somewhat of comment. The receiving tomb at Mount Auburn Cemetery, Cambridge, Mass., is guarded by four men, who will remain until the body is transferred to a mausoleum to be erected at that place. Inside the present tomb a telephone has been installed for the use of the guards if attempts should be made to steal the body.

Collecting

A Paper Read Before The Telephone Society of Washington by H. D. Gasson, Cashier's Office, Washington, D. C.

THE subject selected for my talk to-night, that of collecting, is one that is probably less understood by the average telephone employee than any other part of the telephone business.

The Wire Chief, who receives instruction to deny the service, and the salesman, who is notified that the service has been denied and who calls upon the subscriber to try to save the station, may not realize the immense amount of detail work in connection therewith, the obstacles with which we have had to contend, and the careful consideration given each case before final action is taken.

We occupy the unfortunate position of coming in contact with the subscriber in the most unpleasant of all the Company's relations with him and touch him where he is most easily offended—in his pocketbook.

While I am sure that most of you are more or less familiar with the routine of collecting subscribers' accounts, it will be necessary during the discussion of this subject to refer to the various steps taken before service is denied.

Our troubles start when the subscriber receives the printed form of notice sent with each bill that carries a balance of a month's rental; and for the first few days in each month we are kept busy explaining our reasons for sending out these notices, as there are a number of subscribers who object most seriously to being notified that the service is subject to suspension if the bill is not paid by the 10th of the month.

Sometimes we succeed in pacifying them, and then again they are apparently just as angry after we have exhausted every argument at our command, and we meet the unpleasant experience of having the subscriber's telephone receiver hung up. On rare occasions after this latter happens a subscriber's conscience troubles him and he calls us up to apologize.

In some cases we are told that the salesman who took the applications informed them that payment in advance was not required by the Telephone Company, and while I feel sure that none of our salesmen would use this argument to secure signatures to applications, we do get this complaint. As a rule we think it is a subterfuge on the part of the subscribers to give some reason for their delinquency.

On the 10th of each month a clerk goes through the entire stub file and takes out all the stubs which still show that the balances have not been paid, after which they are listed in duplicate by central offices and numerically. The original is retained by us and the duplicate forwarded to the Plant representative, so that he can advise of any subscribers who have given us right-of-way privileges valuable enough to warrant different action.

After taking note of these, and also such subscribers as the adjuster and other Commercial representatives advise us have claims pending, we then proceed to call up each of these remaining on the list where bills have not been paid.

We now meet another class of the general public, although a very small proportion of those on the list, who become very indignant that we have the effrontery to remind them that they owe us money, and this is undoubtedly one of the hardest classes to handle, because it is composed mostly of people who really can pay their bills and who have a certain amount of influence.

We cannot afford to gain the enmity of any subscriber, and we must use every means to

prevent them from hanging up the receiver before we satisfy them that our request is just, and secure from them a satisfactory promise of payment.

At one time we read a written form of notice to each subscriber, but, principally on account of the class just mentioned, we were compelled to abandon this method, and now each subscriber must be handled in such manner as his conversation suggests to us after we have informed him of our reason for telephoning him.

Not long ago I called up a dentist, and, after telling him that I felt sure he had overlooked his telephone bill, asked him if he would kindly mail his check that day. Imagine my surprise when he informed me, in a most unpleasant manner, that he would send it when he got ready, and hung up the receiver. Before I had recovered from the shock of his answer another Commercial man came in to inform me that the doctor had just called him up and stated that I had insulted him by demanding payment of his bill. I immediately called him up to try to discover how I had offended him, and found that he had taken exception to my asking him to send his check *that day*, which, in his opinion, changed my request to a demand.

One of our men called a subscriber one day to ask him about his check. The subscriber's reply was that he was too busy to talk to him, and with that the man hung up his receiver. Our man went around to see him and was told that the person who called him up wanted to start a long argument with him, and he hung up the receiver to put a stop to it. I simply mention these two incidents, which are only two of many disagreeable ones with which we have to contend in the pursuance of our daily tasks, to show what care must be exercised in trying to collect the money which is justly due our Company.

With a very few exceptions we are now able to obtain from the subscribers satisfactory promises of immediate payment.

Now comes another important part of the collection routine—that of notifying subscribers that they have not kept their promises and of informing them that service is about to be interrupted.

We now have the subscribers who are chronically sick, the subscribers who have just mailed their checks, those who want just another day, those who take this opportunity to abuse the Telephone Company in general and us in particular, and many other forms of attempts to secure a stay of execution.

There is one woman whom I have in mind who every month gets up off her death-bed to come to pay her telephone bill, and informs us that she knows the trip will kill her. A week or so ago a lady came in very much excited and I tried to appease her. She was rather unreasonable in her views, and in the course of conversation I said to her, "Mrs. So-and-So, I am very sorry—" I didn't get any further, because she interrupted me with, "Don't you feel sorry for me! You keep your sorrow, young man, for somebody that needs it; I don't." Then she turned and walked out of the office.

We must not lose our tempers, but in the most courteous manner possible we kindly, but firmly, insist upon immediate payment. Many times our patience is sorely tried, because in the majority of cases it is the same subscribers each month with whom we have to contend.

We generally notify subscribers up to about two o'clock and then submit to the Cashier the stubs of those subscribers who have not paid their bills in the meantime. He passes personally upon each case, being guided largely by the

information which we have noted on the stubs. After this the accounts are checked with the books to make certain that no payments have been made which we have failed to note on the stubs in our office. The Wire Chiefs are then notified to deny service.

Right here develops another one of our troubles. Because of the amount of detail work necessary to make sure that we deny service only to these subscribers who should be denied, we are unable to get these notices to the Wire Chiefs until late in the afternoon, between three and four o'clock, perhaps.

If after the service is interrupted the subscriber makes a satisfactory payment his service must be restored immediately.

Telephone rates are based upon the assumption that the bills are to be paid in advance, and if about 70 per cent. of our subscribers do pay within the current month we must educate the others to do so, too.

I have tried to tell you as briefly and concisely as possible the trials of the employees of the Cashier's office in so far as collecting delinquent accounts is concerned, and I hope that the salesman who feels, after listening to the subscriber's side of the story, that an injustice has been done in denying service, realizes that the utmost care is taken to only deny service after every reasonable means have been exhausted to secure payment otherwise. Also that the Wire Chiefs will feel more kindly disposed towards us, even though we do sometimes cause them to work overtime at very inopportune times.

Washington Division

R. G. HUNT, Division Correspondent

A salesman interviewed a subscriber with direct line and extension service in her home. She wished to disconnect the main station and save money by using the extension set!

Fifty lower margins in the Washington directory were recently applied for by W. B. Moses & Sons, furniture dealers. W. J. Caulfield is the salesman who obtained this renewal—which in itself is an endorsement of the advertising value of our directories.

Two new apartment houses have just been "signed" for private branch exchange service. These apartments, the Juniata and Nantucket, are twin houses adjoining each other. The switchboard is to be located in the Nantucket. Forty stations will be needed.

The Marvin-Mitchell Company, public accountants, have signed for private branch exchange service with 5 stations. This supersedes direct-line service.

The Foster Piano Company will be served by a switchboard and 5 stations, to supersede direct-line service.

THE CHESAPEAKE & POTOMAC TELEPHONE CO., Washington, D. C.

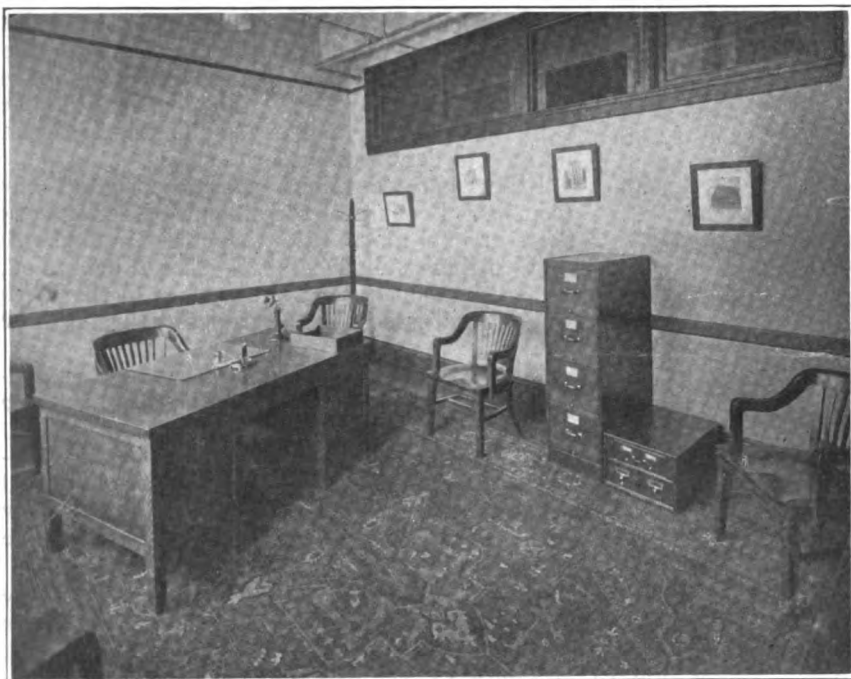
Dear Friend Porter.—I thank you so much for your kind letter and for giving special attention to my request about the new telephone system. The work has practically been completed and we are much aided thereby.

With kindest regards, I am,

Very cordially yours,

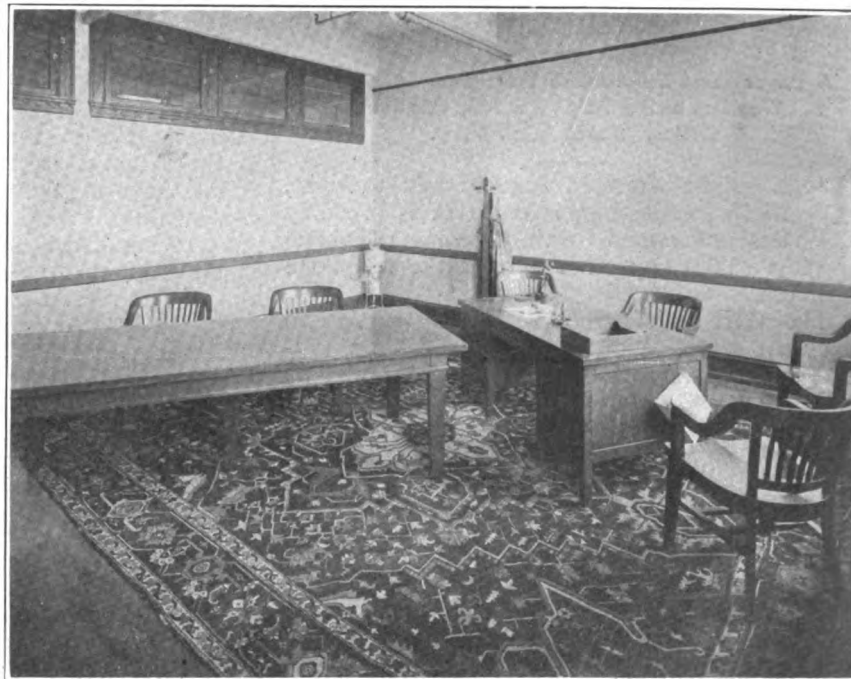
P. S. FOSTER.

Arrangements have been made for a game of chess to be played over the long-distance telephone between Washington and New York. A local paper says that life insurance agents can go some when the roads are good, but it is certainly beginning to look that for real foxiness the telephone solicitors have them switched over to the freight tracks.



Office of Auditor of Disbursements (6th floor),

1230 Arch Street, Philadelphia



Office of Auditor of Receipts (7th floor)

Baltimore Division

J. C. STACK, Division Correspondent

Baltimore. A subscriber recently had occasion to write the Company in reference to an extension of credit, incidentally asking information regarding an item of her bill. An employee of the Cashier's office called the woman and informed her that the extension would be granted and explained the bill. Thinking she could present her case in a better light by a visit to the office, she inquired as to its location. When told, she asked, "Is it a nice place for ladies to visit?" Being informed that many women called daily, and that she would be treated with the greatest courtesy, she stated that she would call the following day. The next morning she did call and the matter was satisfactorily adjusted.

John H. Dockman & Son, confectioners at Baltimore, have signed for No. 1 private branch exchange service, including 2 trunks and 5 stations. This order cancelled an obsolete flat rate. Salesman J. P. Munder obtained the application.

Dr. A. L. Cohen and Dr. F. S. Moyer, physicians in Baltimore, have signed for No. 2 private branch exchange service with 7 and 5 stations, respectively. The salesman was E. D. Hanson.

A letter was received December 16 from W. R. Hough, City Editor of the Baltimore *Star*, requesting an immediate installation, due to illness in family. The Plant Department was advised at 11.45 A. M. and at 2.30 P. M. the order was O. K'd.

Annapolis District. An application has been obtained at Annapolis for a No. 1 branch with 2 trunks and 21 stations for the Hotel Maryland.

On account of the severe illness of a Naval Academy student our Annapolis representative

obtained definite information three times each week and telephoned directly to the boy's father at Louisville, Ky. All calls were satisfactory and without interruption. The father wrote:

Dear Sir.—Allow me to thank you for your courtesy in securing information from the hospital, Naval Academy, about the condition of my son, Farragut F. Hall, and reporting by the American wires three times a week. It is a relief to hear so directly and I fully appreciate the attention.

Clemson

Cumberland District. A Cumberland, Md., subscriber decided to move to Texas, but before doing so paid for his local service at the former place for two months in advance, with the hope that the next tenant of his house would need the service. In closing the conversation the subscriber said that he wished to thank us for the excellent service we had given him and for our kindness and courtesy on all occasions.

Dodge

The Company's Societies

Name of Society.	Date of Meeting in the Month.	Place of Meeting	Secretary.
Altoona Plant Class	Third Thursday.....	1110 13th St., Altoona, Pa....	H. E. Miller.
Atlantic Telephone Society	Third Tuesday.....	14 S. New York Ave. (rear), Atlantic City, N. J.....	C. A. Heisler.
The Bell Club of Germantown	Fourth Tuesday.....	26 W. Cheltenham Ave., Phila....	H. J. Becker.
Camden Telephone Society	Second Tuesday.....	423 Market St., Camden, N. J.	W. C. Culin.
Chester Telephone Society	Second Thursday.....	20 E. 5th St., Chester, Pa.....	W. C. Rainey.
The Cross Talk Club	Second Tuesday.....	Various hotels in Phila. and suburbs.....	R. L. Barrows.
Norristown Telephone Society	Second and Fourth Tuesdays..	401 De Kalb St., Norristown, Pa.	W. S. Zimmerman.
Northern Pennsylvania Telephone Society ..	Third Friday.....	Leonard Hall, Scranton, Pa....	H. E. Smith, Scranton.
The Philadelphia Telephone Society	First Tuesday.....	1420 Chestnut St., Phila.....	F. L. Devereux, 1230 Arch St.
The P. C. T. Club	Second and Fourth Fridays....	Third Floor, 216 E. State St., Trenton, N. J.....	J. A. Ferguson.
Reading Plant School	Second and Fourth Tuesdays..	31-33 N. 5th St., Reading, Pa..	No officers.
The Spare Pair Society	Third Wednesday.....	1414 Arch St., Phila., Pa.....	H. R. Clegg.
The Telephone Society of Baltimore	First Wednesday.....	5 Light St.....	C. Siemon.
The Telephone Society of Pittsburg	Second Tuesday.....	Ohio & Federal Sts., Pittsburg.	L. W. Griswold.
The Telephone Society of Rochester	Every Friday.....	Rochester, Pa.....	J. A. Laret.
The Telephone Society of Washington	First Thursday.....	722 Twelfth St. N. W.....	L. A. Waters.
The Telephone Society of Western Maryland	Second Tuesday.....	Hagerstown, Md.....	R. H. Keller.
The Transposition Club	Third Tuesday.....	Various Pittsburg Hotels....	J. M. Griffith.
Western Pennsylvania Telephone Society ...	Third Monday of January, March, May, etc.....	Board of Trade Auditorium, Harrisburg, Pa.....	S. B. Watts.
West Philadelphia Telephone Society	Third Tuesday.....	Lancaster Ave. bet. 52d St., Phila.....	H. L. Todd.

THE TELEPHONE NEWS



MR. F. H. BETHELL, Vice-President of The Bell Telephone Co. of Penna. and controlled companies, was appointed Vice-President of the New York Telephone Co. at a meeting of the Board of Directors of that company held on January 4, 1911.

Mr. Bethell entered the telephone field as a messenger in the employ of The New York & New Jersey Telephone Co. at Newark, N. J., in November, 1890. In January of the following year he took a position in the Auditor's office of the New York Telephone Co. (then the Metropolitan Telephone and Telegraph Co.), New York City, and after serving in various capacities, was appointed Contract Agent of the New York Telephone Co. in July, 1901.

In 1904 Mr. Bethell moved to Washington to assume the position of General Manager of The Chesapeake & Potomac Telephone Co., and in 1906 came to Philadelphia as Vice-President of The Bell Telephone Co. of Penna. and controlled companies, embracing The Chesapeake & Potomac Telephone Co., The Delaware & Atlantic Telegraph & Telephone Co. and The Diamond State Telephone Co.

In February, 1908, Mr. Bethell became President of the Maryland Telephone Co., which previous to that date had operated as a competing company in the State of Maryland, and in 1910, Vice-President of The Central District & Printing Telegraph Co.

A tracing of the career of Mr. Bethell—from his life as a boy on an Indiana farm to his present unusual position in the telephone field—would be but a succession of continually greater works and greater recognitions.

Few, indeed, are the Bell employees between coast and coast and gulf and lakes who do not know Mr. Bethell as the exponent of all that is modern in telephony. To the employees of our own group of companies he is the man who has created and popularized what we have pride in looking upon as the Nth degree of effective organization. Under his guidance in the Ches-

FRANK H. BETHELL



apeake & Potomac, Pennsylvania Telephone, and Diamond State territories, we have passed from a divisional to a functional organization. The same transition is now being effected in the western province of the Central District company; and withal we have witnessed the coalescing of seven companies in as many States into one functional unit embracing 76,550 square miles of territory, 11,000,000 people, and a telephone development of over a half a million stations.

As a dominant factor in the "message rate plan." Mr. Bethell has realized the full efficacy of this system in Philadelphia, Baltimore and Washington. Pittsburgh is now about to join the ranks.

In the midst of the trying and ever-increasing responsibilities that have been imposed upon him, Mr. Bethell has found time for study, unusually comprehensive study, that has been capitalized against his subsequent work.

All of us who have heard him before our telephone societies have not failed to appreciate his intimacy with libraries, the soundness of his thought and judgment, and his diversified knowledge born of untiring application.

The New York Telephone Co. will henceforth share with us a Vice-President whose activity has been most productive, in whom the humani-

tarian instincts are pronounced and whose popularity is a hall-mark which affords us consummate pride.

We congratulate the New York Telephone Co. on the opportunity of identifying itself with Mr. Bethell. As employees of The Bell Telephone Co. of Pennsylvania and controlled companies we take unusual pride in this latest honor bestowed upon him, and welcome his declaration that in no degree will his increased duties tend to lessen his connections and interests in our companies.

VICE-PRESIDENT

The Bell Telephone Company of Pennsylvania,
The Central District & Printing Telegraph Co.,
The Chesapeake & Potomac Telephone Co.,
The Delaware & Atlantic Tel. & Tel. Co.,
The Diamond State Telephone Company
and
New York Telephone Company

PRESIDENT

Maryland Telephone Company

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



The Chesapeake & Potomac Telephone Company
The Diamond State Telephone Company

U. N. BETHELL, President
P. L. SPALDING, Second Vice-President and General Manager
W. S. PEIRSOL, Secretary and Treasurer
L. H. KINNARD, Commercial Manager
Managing Editor, F. H. HAVENS, 1230 Arch Street, Philadelphia, to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum, payable in advance

Vol. VII JANUARY 15, 1911 No. 2

Stock-Taking Time

This is stock-taking time. Physical stock-taking is more or less a mechanical process often delegated to those in charge of details. Mental stock-taking involves a broader, deeper view of one's capabilities with reference chiefly to his own life's possibilities.

A dealer in goods would probably estimate that the amount of physical stock which his financial ability permitted him to carry would, within the year, probably net him a certain almost fixed profit. But for a man who is selling his services—both mental and physical—there is practically no limit in the *possibilities* of benefit to his employer and to himself. (The *probabilities*, however, depend upon that employee's preparation, interest and general application.)

Stock-taking has been of immeasurable benefit to many people. It has taught one class to sprint a bit and another class to pull in on the reins. It has shown some wherein the lack of ambition has checked their growth and a much smaller number how an excess of zeal has worked them harm. It has proved straightforwardness to be one of the strongest of business assets and courtesy to be on the same side of the successful man's ledger. It has wakened many a person to his best interests, although sometimes only through that most severe of all teachers—experience.

"I see now where I made my greatest mistake," have said many people. "If I could live those years over again—," say hundreds every day. But where stock-taking is a frequent occurrence one hears these statements much less frequently.

The asking of an associate to state frankly what he thought of one's ability as evidenced by his work would perhaps, in the majority of cases, result in flattery rather than frankness. Therefore, the genuine criticism must originate with the individual himself.

The mental process of putting one's self in front of one's self for inspection, and seeing just where the short-comings are, is well worth practicing, and there is no better time for such a general overhauling than at this season of the year.

Public Appreciation

Expressions of public appreciation of good postal, railroad or telegraph service are usually not expected, because such services are considered more or less public institutions. Their services are taken somewhat as a matter of course and usually it is only when they seem to fall below the standard that the public is heard from. Then, too, the public's idea of a standard becomes more and more difficult to satisfy as that standard is raised by the grade of public service rendered.

The same is true of telephone service. The following is an editorial which appeared in the *Baltimore Sun* of December 25. Its spirit is indicative of the growing public appreciation of our traffic problems, not only in that locality, but throughout the territory:

"The Baltimore Telephone Girl"

"The universal adoption of the telephone as a means of communication and the ease with which it is used make most of us lose sight of the complicated system by which such things are made possible. With the increase in the number of lines, the problem is rendered more intricate, and the number of connections possible for each telephone greatly increased.

"In a city the size of Baltimore the telephone system is a modern marvel. It must handle a traffic comparable in volume only to the street car system, and the calls in a short period mount into the millions. The subway system has put the wires out of sight, but if they hung on poles and frames, as in the old days, there would be a perfect net of wires woven over every street in the business district.

"In the rush of business men often are annoyed by being unable to get at once the communication they desire. 'Line's busy' is a response that enrages them. They cannot see why the line is busy, and half the time believe it is the fault of the telephone girl. If a subscriber 'will not answer,' they want to know the reason why. The service is rapid, but they want it to be instantaneous. In this season of good-will it is well to remember the telephone girl. She must be a marvel of patience when at the one-thousandth call she can answer as cheerfully as at the first; when her nimble fingers change the lines with lightning-like rapidity; when

she always 'has her eye on her number' and can keep the traffic moving under almost all conditions. There may be exceptions now and then, but as a rule the Baltimore telephone girl is notably efficient, polite and obliging. She must be of native stock, for she has the clear, soft voice of the Maryland woman, and an un-failing consideration that seems somehow to be a characteristic of Baltimore people.

"The telephone employees here, like the street car conductors and the policemen, must be better than they are in other cities. They do not regard the public as a mob or rabble to be fought and given as little as possible. They regard them as friends and patrons, entitled to what they pay for, and they give with that service a polite consideration that enhances its value and engenders among the general public a friendly attitude toward the corporation by which they are employed. This is a business asset of real and permanent value, and the employees of such public service corporations deserve the consideration of their employers as well as of the patrons who appreciate their good points."

A Young Man's Opportunity

Philadelphia Evening Bulletin

No, young man, there isn't any chance for you at all. The corporations have swallowed up every opportunity, and all that is left for you is to be a hewer of wood and drawer of water—

Unless you are a young man of good character.

Unless you are a young man of intelligence.

Unless you are a young man of energy.

Unless you are a young man willing to put in your besticks all the time, and not spend most of it complaining because you work too hard and get too little pay.

Unless you make up your mind that in every honorable way you are going to succeed.

Otherwise you have a dark future, for which you need not pay a dollar to a fortune teller to inform you.

But if you are all of these things, you have a better chance to get ahead than any young man ever before had in this country.

Take the case of Charles H. Markham, who was last week elected president of the Illinois Central Railway Company, at a salary of \$50,000 a year. Less than thirty years ago he was a day laborer on a Western railroad and got \$1.25 a day. Did he spend his spare hours grumbling over his hard lot? Did he make up his mind that corporations were grinding out the life of the people and try his best to

(Continued on Page 4, Column 3)

Organization and Territorial Changes

Effective January 16, 1911, the revenue accounting in all divisions will be under the supervision of the Auditor. After that date, assistant auditors, revenue supervisors, or other employees in charge of revenue accounting, will report direct to P. O. Coffin, Auditor of Receipts.

D. C. Hosfeld, formerly Plant Supervisor, Reading District, has been transferred to the same position at Wilmington, Del. On December 27, '86 of his former associates at Reading and other points tendered Mr. Hosfeld a farewell dinner.

Baltimore Division

Coincident with the transfer of the Dover District of The Diamond State Telephone Company from the Atlantic Coast to the Baltimore Division, effective January 1, 1911, the offices of G. H. Fulmer, District Manager, were removed from Dover, Del., to Salisbury, Md.

E. D. Prince, formerly Chief Clerk at Dover, was appointed Local Manager of Dover Sub-District.

G. W. Brooke, Agent at Elkton, who formerly reported to the Wilmington District Manager, now reports to the District Manager at Havre de Grace, Md.

M. E. Garber, Agent at Ellicott City, has been appointed District Manager at Havre de Grace, Md.

A. C. Brauer, District Manager Hartford District, has been made Agent at Bel Air, Md.

E. L. Mattice, rural salesman, Baltimore Division, has been transferred to Baltimore City as city salesman.

E. McK. Johnson, salesman at Baltimore, has been transferred to rural work.

Harrisburg Division

C. F. O'Donnell has been appointed Local Manager at Pottsville.

R. I. Waltman succeeds F. E. Cowan as Local Manager at Easton, who has been transferred to the same position at Lebanon.

Atlantic Coast Division

The Delaware City and Middleton, Del., exchanges are the only points in the Diamond State territory now in the Atlantic Coast Division. The Wilmington District Manager has charge of commercial matters at these places.

Pittsburg Division

C. E. Starr, formerly Disbursement Clerk at Butler, has been appointed Chief Clerk at that location.

Philadelphia Division

D. W. Figner, formerly Chief Clerk, Engineering Department, has been transferred to the Traffic Department.

J. D. Ferry has been appointed Chief Clerk, Engineering Department.

A. T. & T. Co. Changes

H. D. Austin, District Traffic Chief at Reading, has resigned to accept a position with the Western Union Telegraph Company.

B. B. Lindsay, Assistant Traffic Chief, Philadelphia, has been transferred to Assistant Traffic Chief at Baltimore.

E. J. Padmore, District Traffic Chief, Philadelphia, now has supervision over the Reading District.

THE Western Electric Company received another box of Class C material just recently, which is notable for the condition of its contents. All of the articles were thrown in together. Even short distance shipping of goods in such condition would damage practically any equipment of this kind.

Protector mountings, several sizes, cut-outs, bells, fuses, carbons, ringers and negative elements were there in great profusion and (shall we say?) confusion.



"Confusion
Worse
Confounded"

Philadelphia Division

R. C. MASON, Division Correspondent

Down Town District. The warehouse of Haynes-Thompson Company, manufacturers of plumbers' supplies, at 2107 Vine Street, was partially destroyed by fire on December 30. The Down Town Office received a report of the fire at 12.30 P. M. and at 1.15 P. M. temporary service had been installed in their new quarters at 1705 Chestnut Street.

The following letter was received from Clermont, Fla.:

December 31, 1910.

"BELL TELEPHONE COMPANY,
Philadelphia, Pa.

"DEAR SIR: Will you kindly telephone your patron, either at his office, Fifteenth and Market Streets, or residence in Overbrook, that there are four boxes of fruit at the Merchants & Miners' docks, shipped from Florida to him?"

The subscriber was promptly notified. **Gaul**

North Philadelphia. On January 3, at 12.15 P. M., a report was received by the Traffic Department that telephones were out of service at Girard College. Investigation showed that an 11-pair cable had been cut in two and the entire service at that institution was affected. Half an hour after the Cable Foreman was notified all trouble was O. K. **Ked.**

On December 27 William L. Lloyd, of the William L. Lloyd Company, Twenty-ninth and Ridge Avenue, called the District Manager's office to thank the Company for the excellent long distance service he was receiving. **Garwood**

Chester District. Salesman J. F. McIntyre, of the Chester District, "signed" the H. K. Mulford Company, manufacturers of vaccine and antitoxine products, at Glenolden, Pa., for a 12-station private branch exchange with 2 trunks and a tie line direct to their Philadelphia branch exchange at 428 South Thirteenth Street. This application superseded two 2-party obsolete contract stations and a local system. That firm has been canvassed for better service at intervals for ten years. **Hall**

Doylestown District. The following new rural lines have been organized:

Name.	Exchange.	Stations.
Sandy Ridge.	Doylestown.	7
Develin	Langhorne.	6
Game Park.	Yardley.	6
Emilie	Bristol.	21

The Plumstead Rural Telephone Company at its annual meeting on January 2 received 3 applications for service, making 50 in all. Our Company was congratulated on its efficient 1910 service.

A Girard Trust Company (Phila.) official installed direct line telephone service in his father's home at New Hope, Pa., as a Christmas present. **Hennessy**

Jenkintown District. A Wyncote residence was robbed December 21 and the fact was discovered when a trouble man was sent out by the Wire Chief. The burglar had cut the wires to preclude the calling of the police. He had then forced a side window.

DISTRICT MANAGER BELL TELEPHONE COMPANY,
Jenkintown, Pa.

My Dear Sir:—I beg to express my appreciation of the improved service in the Ambler exchange. It is prompt, intelligent, courteous and efficient.

It would afford me pleasure if you will forward this letter, or a copy, to the Chief Operator in our exchange that she and her force of operators may know that their efforts to improve the service are appreciated.

I have written you instead of Miss Roberts direct, feeling that this is the proper course.

I am very truly yours.

T. F. CONOVER.
Mathews

Main Line District.

BELL TELEPHONE CO. OF PENNA.,
Philadelphia, Pa.

DEAR SIR: I wish to thank you for the manner in which the telephone pole on my property at Narberth, Pa., was transferred to a less objectionable location. The work was very satisfactorily done. **Young**

Norristown District. At the December meeting of the Board of Directors of a well-known charitable institution of Norristown one of the recommendations made by the matron was that an extension set be placed in the second floor apartments in accordance with the advertisement appearing on the back of the Christmas card which had been left there by one of our salesmen. The recommendation was approved.

The Plant Department at Norristown has completed the installation of a 40-line P.B.X. switchboard in the new plant recently erected by the J. Ellwood Lee Company, manufacturers of Jelco Tires, at Spring Mill.

Owing to the exceptional growth in stations in Norristown during the past year the Plant Department is now arranging to place additional lines in the switchboard, which was installed in the new central office building in the spring of 1910.

On December 8, at 3.30 P. M., our Phoenixville salesman received a telephone call and was requested to place a telephone in a residence that had been quarantined for scarlet fever. He obtained the application and then called the Commercial Office for an advance line-order number. Service was installed at 4.15 P. M. **Beerer**

West Chester District. A. E. Townsend, the local representative at Oxford, obtained 61 new applications in December prior to the 17th.

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Butler District. A private branch exchange with 8 stations has been installed in the plant of the Kerner Mfg. Co. at Zelineople, Pa. The Smart & Silberberg Company of Oil City, Pa., has taken two hundred telephone coupon books for distribution among out-of-town customers.

Since the convention of the State Grange at Butler, Pa., in December, 50 applications for rural telephone service have been received. The joint Western Electric-Bell display attracted the attention of the delegates to the convention and made an impression worth while.

Stewart

New Castle District. A Union City, Pa., couple chose the 2.50 train to Erie, Pa., for their wedding journey. After the train had started, several men in the wedding party stole the bridegroom and the bride was left alone to take the trip to Erie. The groom, however, broke away from his captors and rushed to a Bell public telephone. He called the chief operator at Erie and instructed her to send a messenger to the train to meet the bride.

The Erie-Fairview toll station line is eighteen miles long and serves eight stations. Until recently this line was operated by means of a battery call system and gave unsatisfactory service. It was suddenly decided that the system should be changed. No instruments of the type desired (317 P) were in stock at Erie, but a number were known to be stored at Union City. These were shipped to Erie and twenty-four hours after the sudden decision the entire equipment had been changed.

Meyer

Pittsburg District. Not long ago a Pittsburg man was attacked with a sudden illness while walking along Fifth Avenue. The unfortunate person lay in the street for several seconds before a crowd came to his aid. A search of the man's clothing failed to reveal his identity. An ambulance was summoned, but before it arrived on the scene the man was able to move his right arm sufficiently to indicate a small pocket unrevealed in the first search. In this pocket was found a receipt for the payment of a bill for telephone service rendered by our Company. This receipt established the identity of the prostrated man and as soon as his name was known an individual in the crowd hailed a taxi-cab and the sufferer was taken to his home. The man recovered in about three weeks, and when he was able to be out one of the first offices visited was that of our Company.

"I have always had a fear of being sent to the hospital when I have one of those attacks," said the man. "But the other day your receipt served to identify me and I am so thankful for



A class of eighteen men recently finished the course in the School for Salesmen conducted in the Seventh Avenue Building, Pittsburg. These men have been assigned to Commercial work in various parts of the Pittsburg Division. In the photograph they are grouped with some of the officers.

Standing, Left to Right. H. Hall; C. P. Smith; G. H. Jenny; W. H. Allen; S. Simmen; W. D. Burns; D. Dawson; E. Tissue; L. P. Wragg; G. Flotzinger; S. Lenchner; T. J. Harper.

Middle Row, Left to Right. H. C. Young; A. S. Frazier, Commercial School Instructor; A. Stein, Jr., Commercial Engineer; W. B. Clarkson, Division Manager; G. S. Reinoehl, Pittsburg District Manager; F. K. Singer, Plant School Instructor; N. P. Moran.

Front Row, Left to Right. O. F. Fowler; J. W. Holmes; H. F. Friday; R. C. Rearick.

the escape that I wanted to step in here and explain the situation."

The sealing of an envelope is an important thing. Refraining from so doing is also important at times. One envelope recently received at Pittsburg contained printed matter which should have been carried by the Government for thirteen cents. But this particular letter had been unintentionally sealed and when it was delivered the post office department had affixed thirty-nine cents worth of stamps calling for extra postage.

Until a few weeks ago the Pittsburg Post Office relied mainly upon the city directory for the correction of addresses upon mail matter. If the name on the mail matter could not be found in the city directory, the envelope was so stamped and, if possible, returned to the sender. Recently it was suggested that the Bell telephone directory be consulted if the city directory failed. This was done and soon proved to be most effective in cases of this kind. As a result there is a standing order for ten copies of each new issue of the Pittsburg telephone directory to be delivered to the post office department as soon as the books come from the press.

[This plan is also in use in certain other cities of our territory.]

Uniontown District. Francis Rocks, President of the Sunshine Coal & Coke Company, of Uniontown, sent the Uniontown and Masontown operators eighty pounds of chocolates marked, "With best wishes for a Merry Christmas."

The Brunswick Hotel, at Uniontown, Pa., has signed an application for a No. 2 Private Branch Exchange, with 2 trunks and 40 stations. This equipment will replace an opposition P. B. X.

Twenty-two installers are busy in Morgantown, W. Va., putting in the new common battery instruments.

Additional equipment has been added to the Washington, Pa., switchboard in order to accommodate 20 new toll lines.

The Brownsville, Pa., operators have for a long time been bothered by one subscriber who invariably calls by name and not by number. Accordingly when the new directories came out the Chief Operator took particular pains to see that a copy was sent to this subscriber, who in return surrendered the one he was using. The book was fourteen years old and contained about one-twentieth of the names to be found in the new one.

A new line has been built between Connells-ville, Pa., and Ohiopyle, Pa. Indian Creek, Bear Run and Stewarton are served by this line.

Cahoon

A Young Man's Opportunity

(Continued from page 2)

down them? He did not. He did with his might all his hands found to do and with such intelligence that he has never been idle or unemployed an hour when he wanted to work.

Practically every man in great executive position in this country has had the same experience. Practically every such position in future will be filled by men who have worked up from the bottom. It is not the sons nor favorites of rich men who are going to get the big jobs in this country, but those who are able to fill them after a career which has demonstrated fitness. Everybody knows Napoleon's saying that there was a marshal's baton in the knapsack of every private soldier, and the spirit of it is true of civil or industrial life. There is success for every young man in this country who deserves it.



Joint W. E. Co. - Bell Display at Butler, Pa.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Bridgeton Sub-District. The Western Electric Company has a force of men at Bridgeton changing the No. 12 type of repeating coils on all toll lines to the No. 25 type.

Six stations, of a total of 15, serving the Minetola and Landisville Rural Telephone Company, have been connected.

A Bridgeton physician, who had tried to use the opposition service only, said he had found that he was losing business. He called at the local office and signed for direct line service.

A shoe merchant at Bridgeton agreed to sign for service provided he was furnished service immediately. Two hours afterward, at 5 P. M., his station was connected.

A Philadelphia commission merchant makes it a practice to station buyers at the different shipping points throughout South Jersey during the buying season. At Christmas he wrote: "To the Bridgeton operators who so ably handled our telephone calls in 1910 we wish a Merry, Merry Xmas and a Happy New Year. **Lore**

Camden District. Five hours after telephone service was ordered by the Gloucester representative of the Welsbach Company the station was O. Ked. Their Purchasing Agent wrote to the District Manager mentioning the facts, thanking him and wishing him the season's greetings.

At the Woodbury High School fire, in which a \$90,000 building was totally destroyed, our trouble man Temple saved our two telephones and one belonging to the Opposition Company. He received a letter of thanks from that Company. **Croston**

Trenton District. From 1835 until the middle of November, 1910, the city officials at Trenton have been housed in its \$20,000 City Hall, located at State and Broad Streets. The new Doric building of Vermont marble and gray granite cost \$1,000,000, and is as much a pride to the city as was its predecessor 75 years ago. The interior is decorated to represent the products in which the city excels—pottery, wire, iron and rubber. As previously mentioned, the telephone equipment consists of a No. 1 branch of 5 trunks and 30 stations. This was installed only after continued selling efforts to win over the various heads of departments who had in the old building been satisfied with individual direct line service.

O. Ewan, local representative at Mount Holly, has obtained applications for the "Farmers' and Cranberry Growers' Telephone Company," a new 10-mile rural line near Fairview. **Brown**

Wilmington District. A P. B. X. of 2 trunks and 12 stations will be installed in the new Administration Building for the use of the Water Department.

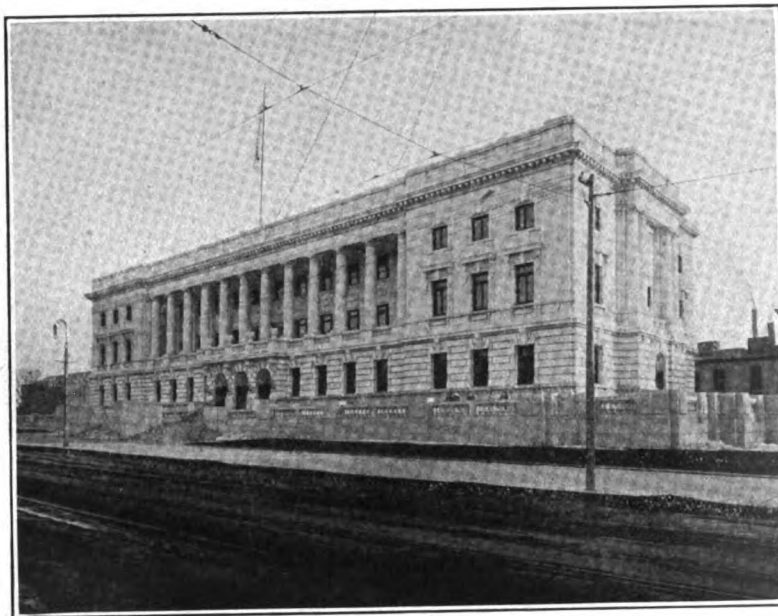
The Wilmington Fibre Specialty Company will have No. 1 P.B.X. service with 2 trunks and 6 stations.

Lineman Stewart O. Ked a station, three miles from Wilmington, just four hours after Salesman Kirk had obtained the application. The reason for this rush was illness and the Plant men had told the Commercial representative to accept the application.

Our Agent Brooke, at Elkton, impersonated Santa Claus for a youngster who insisted upon talking with that all-important personage. At school the boy told of his experience and several children asked their parents to install telephones so that they might call Santa. Two new subscribers resulted, and now their children believe that—"To reach anyone anytime anywhere, they must Use the Bell." **Chambers**

**New \$1,000,000
Municipal Building
at
Trenton, N. J.,
which replaces
a \$20,000 One
in Service for
Seventy-five Years**

[Further details in Column 1]



Washington Division

R. G. HUNT, Division Correspondent

The New Continental Hotel, which will be completed about the latter part of February, has contracted for Private Branch Exchange service with 4 trunks and 150 stations. An application has also been obtained from the Westchester Apartment House for 10 stations and 2 trunk lines.

The Commercial Department in Washington is particularly proud of its advertising record for the January directory, which included 238 lower margins and 1,337 bold type listings in the business section. G. Bowie Chipman, Local Manager, Harriman & Company, states that he considers his marginal advertisements in the telephone directory to be the most effective publicity he carries. A further endorsement of the directory as a medium comes with the application of G. G. Cornwell & Sons for 10 lower margins. This grocery firm, one of the largest in Washington, is especially conservative along these lines. Another recent application for directory advertising was that of the R. P. Andrews Company, which was secured just prior to the closing of the January directory. This was for 10 lower margins.

The Washington Division estimate of station gain at the beginning of the year 1910 failed to be realized by only 21 stations.

Stationery Notes

It is recommended that pins be used where possible when only a few papers are to be fastened together. Two sizes are carried by the W. E. Co., i. e., No. 3 and No. 6 in ½-lb. boxes.

Two thousand Form 1715 envelopes, size 10" x 15", opening on the 15" side, with The B. T. Co. and controlled companies' standard corner card and equipped with patent fastener, are being stocked by the W. E. Co. for the use of all departments. The trade mark seal will appear on the flap.

Requisition Form Changed

Form 1136 (Duplicate 1136A, Second Sheets Form 1136B), together with the proper suffix letters to designate the various departments, has replaced the stationery requisition formerly known as S. R. Form 1136 is to be used by all departments for ordering every kind of material.

The code letters are given in detail in Routine 111A, effective January 1.

The Sale of Telephone Directory Advertising Space

Twenty-five years ago oatmeal was the sole breakfast food, and that was simply oatmeal without any special name.

To-day "the woods are full of 'em."

What did it?

Advertising.

Soda crackers were soda crackers.

To-day they are Uneeda Biscuits.

These are but two of a thousand instances of commercial success through advertising.

Each dealer in the towns now being canvassed can just as firmly control a trade by persistent and careful publicity.

The Bell Telephone Book presents the ideal points of an advertising medium. These merchants have their own problems to work out, and our sales force must be the agency that'll change their points of view.

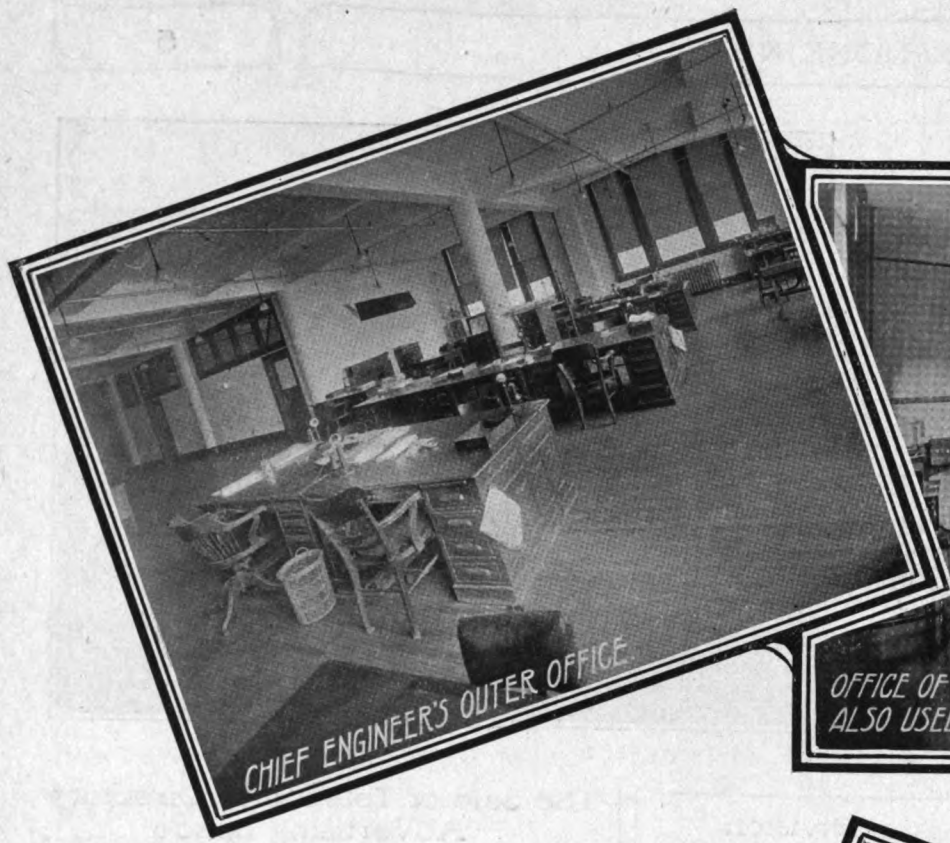
One man reports, "There's only one man in that town—it's dead." Let's turn to the telephone directory and see:

Druggists	2	Barbers	2
Hosiery Mfg. Plant....	1	Confectionery Mfg. ...	1
Oyster House	1	Lawyers	2
Fertilizer Mfr.	1	Dentist	1
Newspaper	1	Candy Retailer	1
Hotels	5	Coal	2
Plant Grower	1	Jeweler	1
Florists	2	Bakery	1
Grocers	9	Dry Goods	3
Plumber	1	Machinists	2
Grain	1	Builder	1
Water Company	1	Express	1
Iron Works	1		

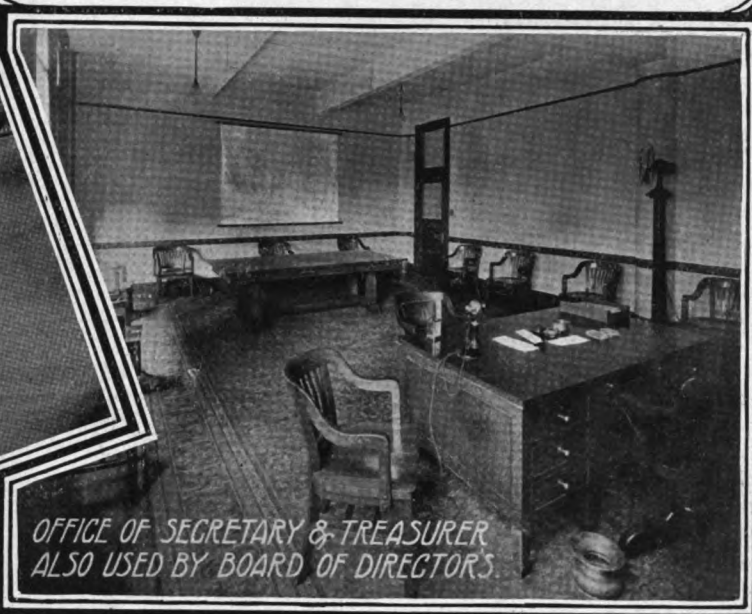
Now, these people pay on an average of \$30 a year for telephone service, and in all probabilities 70 per cent. are advertisers and the other 30 per cent. should be.

The way to tackle this town is to make a list from the directory and newspaper and say "I'll get every one of these fellows. They may not think they want to advertise, but I know the directory is good—that it'll reach every person they can possibly do business with, and it's up to me to make these dealers see it my way, and they will see it."

Successful soliciting means to change a man's point of view to ours. Forty calls a day may mean forty chances spoiled for some one else. Take each prospective business, study it, convince yourself of the reasons he should advertise, then tackle him and convince him. Don't simply spot a place and then bolt in without a study of conditions.



CHIEF ENGINEER'S OUTER OFFICE



OFFICE OF SECRETARY & TREASURER
ALSO USED BY BOARD OF DIRECTORS



TRAFFIC MANAGER.



OFFICE OF CHIEF CLERK TO THE VICE-PRESIDENT



VICE-PRESIDENT



PLANT MANAGER.



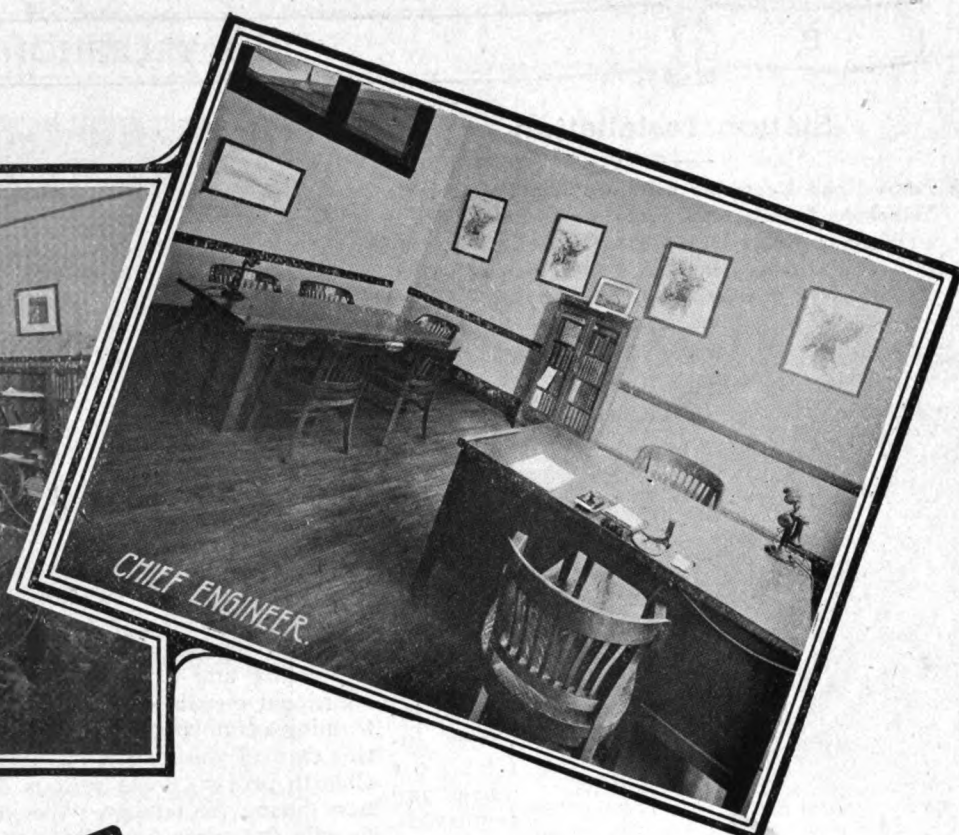
TRAFFIC MANAGER'S OUTER OFFICE.



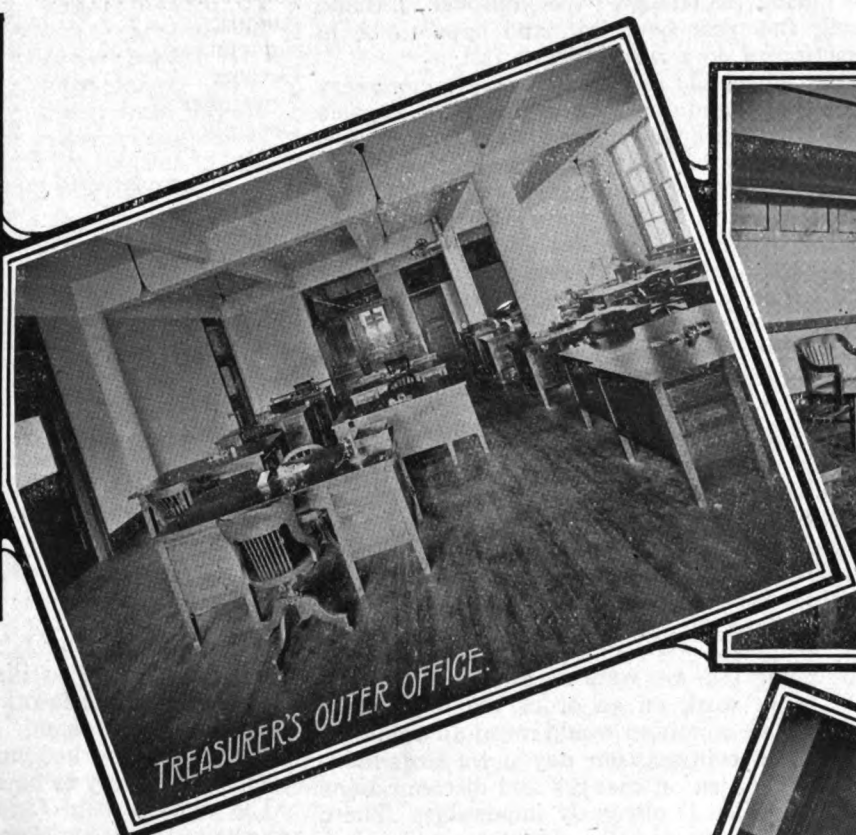
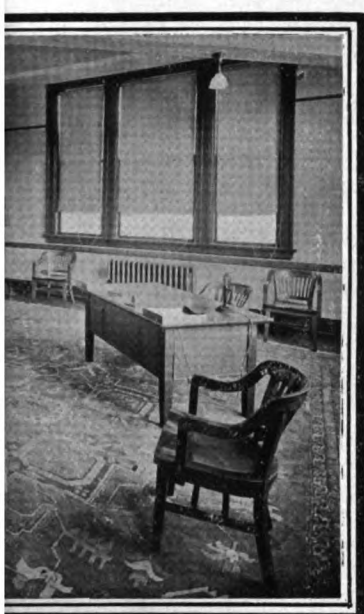
BRONZE SIGNS AT 13TH A



SECOND
VICE-PRESIDENT
AND
GENERAL MANAGER.



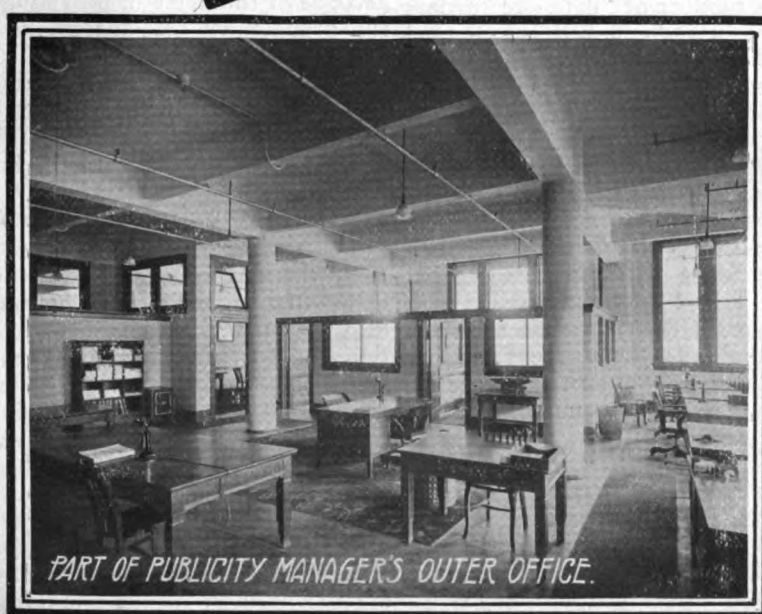
CHIEF ENGINEER.



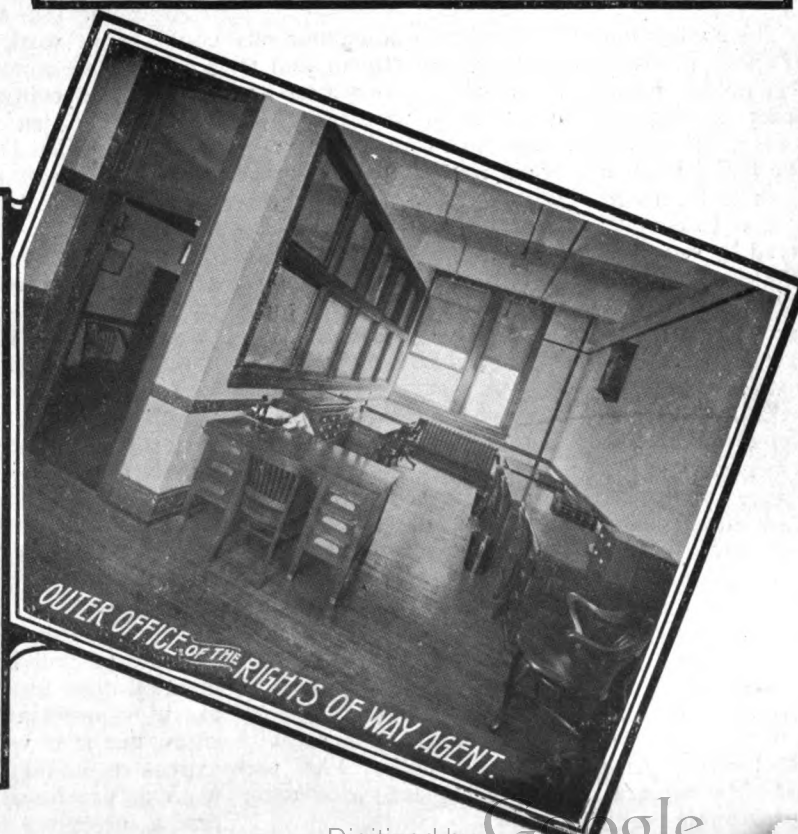
TREASURER'S OUTER OFFICE.



COMMERCIAL MANAGER.



PART OF PUBLICITY MANAGER'S OUTER OFFICE.



OUTER OFFICE OF THE RIGHTS OF WAY AGENT.

Station Installation

A Paper Read December 6 Before The Philadelphia Telephone Society, and December 19 Before The Western Pennsylvania Telephone Society, at Harrisburg, by H. B. Porter, Supervisor of Equipment, Philadelphia

STATION installation, for the benefit of members not connected with Plant Department, covers the placing of all subscribers' station equipment and the necessary wires from this equipment to the terminal or permanent pole line. It also includes interior moves and removals, and in



Philadelphia all rearrangement of the outside wire plant which may become necessary on account of changes in the method of distribution.

The placing and moving of subscribers' station equipment is handled almost entirely through the medium of line orders, the number of which received in Philadelphia during the first ten months of this year affected approximately 55,500 stations. This number is divided as follows:

52%.....New Connections.
30%.....Disconnections.
18%.....Changes.

These figures indicate the various types of work encountered and for which this organization is planned. To complete this work as it comes in would not be a very difficult job, but our conditions require that it be completed, first, in a manner satisfactory to our Commercial Department, representing the requirements of the public; and, second, subject to our own always advancing standards of cost and quality.

The Time Factor.

The completion of line orders in a manner satisfactory to the Commercial Department and to the public means, principally, promptness—in order to give the subscriber service nearly as soon as it is desired—and to avoid losing revenue which the Commercial Department has made possible for us to obtain. Our aim in Philadelphia is to complete all orders which are not delayed by causes beyond our control, such as lack of facility, right of way, or held by subscriber, within an average time of three days of their receipt at the District Foreman's office.

It is necessary with our present organization to take at least one day for a survey of the line order and the assignment of the catalog number, and for the delivery of material before the work is begun.

One of the great difficulties encountered in maintaining any average time of completion is the change in the number of new stations received from month to month. This, of course, is naturally an unavoidable condition. To show this more clearly, let us assume that the force is organized to do a certain amount of work and complete that work within an average time of three days of its receipt. If the amount of work increases 60% between two months, as it actually did between August and September, 1909 and 1910, the construction force is placed in a rather unfortunate predicament.

There is also a great change in the type of work—disconnections and changes received, as well as disconnections and sudden increase in changes.

Either we must have other work than line orders during the low months, in order to keep this organization large enough to cope with the situation in September, or we must keep on the payroll a force larger than necessary, or we must delay installations during the peak of the load in September and October. We have actually a combination of the first and last conditions. About May all unimportant rearrangement and change orders which may be delayed without loss or inconvenience to the subscribers are put aside for the summer months in case the amount of new business received is reduced to a degree to threaten lack of work.

If it is decided that the organization will not be able to do the amount of work received during September and October without serious delays, additional men are added to the force and their training commences about June 1st. Even with this careful planning it has been, so far, impossible to prevent some serious delays in installation during September. We improved, I think, during this year over last, and hope to be in a position to do a real job next fall.

You can readily see from this the unnecessary expense of maintaining an organization capable of completing 8,000 new stations within two months when we will expect to receive on an average of but 2,400 stations during each of the other ten months. Again, the shorter the time elapsing between the receipt of a new contract and its completion, the greater the effect on the organization from an abrupt change in the amount of work received. An example taken at random for the Central District shows this condition very clearly.

Connections. Increase.		
We received:		
Nov. 1st	33	
Nov. 2d	43	
Nov. 3d	29	
Nov. 4th	44	50%
Nov. 5th	134	200%
Nov. 6th	35	
Nov. 7th	61	75%

Assuming that we were on an ideal basis and could begin work on an order the day it was received, this condition would mean an organization for new contracts one day and a large number of these men on changes and disconnections the next, which is obviously impossible. There are also generally a number of "date due" orders received at the last of each month, which tend to congest the work.

I am emphasizing this point because it is one of the most, if not *the* most, difficult condition to plan for and still keep the proper mean between cost and time of completion. You will notice that this condition is exaggerated by the fact that the lowest months and the highest months are close together. It would be much easier to organize for a steady increase from month to month. I feel that the construction foremen deserve a great deal of credit for their organization, in that comparatively few line orders have been delayed from lack of men even during the rush periods of September and October.

Before I leave the time factor in completing line orders and its effect upon cost, I wish to mention that unavoidable "rush order." They are most necessary, I believe, in a great many cases, but it is well to remember that they are expensive, in that they interfere with the day's work as previously laid out and frequently irritate a subscriber whose work it is necessary to

STATIONS: { Connections Changes Disconnections } Received — 1910, includes P. B. X.—18%

	1910. Con- nections.	Changes.	Discon- nections.
January	2219	914	1303
February	2215	652	1238
March	2391	744	1422
April	2944	1037	1887
May	2357	599	1697
June	2575	667	1682
July	2814	1151	1691
August	2510	757	1531
September	4044	1927	1963
October	4323	1292	2648
November	3172	996	1989
December	2771	843	1513

leave uncompleted to go on a rush job in another locality.

Relative to the average time for completing all line orders which are considerably in excess of three days, the following shows the condition of line orders in Philadelphia for the week ending November 26th:

	Per cent. Stations. of Total.
In Hand	743 28
Held for Plant	282 10
“ “ Material	26 1
“ “ Right of Way	37 1
“ by Subscriber	1149 44
“ “ Commercial Dept.	201 8
Due Subsequent Date	192 7
	2623

Total { 40% due to Plant conditions.
60% due to other conditions.

The number "in hand," 743, includes all orders which can be worked upon that have been received too recently to be surveyed or assigned.

The number held for plant, 282, is high on account of the delay in providing distribution for the prepayment stations in the Dickinson District.

The number held by subscriber, 1149, is excessive on account of an order at John Wanamaker's store involving about 700 stations which cannot be completed until the building has been finished.

Construction Expense

The second part of the job of station installation, that of complying with certain requirements of cost and quality, brings us to the point of the comparison of the expense of construction and the underlying reasons for the results which have been obtained in Philadelphia. Subscribers' loop construction in this city previous to 1900 was almost entirely from scattered terminal poles-pole lines, some aerial cable, not much, and so-called block wiring in the business section of the present Down Town district. Most of the loops constructed were extremely long compared with those of to-day with the exception of the business section, which at that time was known as the "block district" on account of the number of terminal poles and junction boxes. The ter-

Station Installation

(Continued)

terminal poles were generally of the white pine type, carrying from four, ten or twelve pin crossarms upwards. The wall junction boxes were made of wood and were large enough to hold about four of the present type.

The block wiring at that date rather resembled some of the present so-called "independent" construction—large rings and No. 14 twisted safety wire were used, and long spans between buildings were frequent.

The work was organized for as follows:

For open loops a gang consisted of five men, foreman, two climbers and two groundhands. After the open lines were constructed another man was sent to the terminal, placed the pole jumper, picked the cable pair and then connected the open loop to the cable. After this an installer and his helper set the instrument and ran the inside lines and placed the equipment in service. A total of eight men actually, without counting any supervision, for this job. The block wiring, I understand, was constructed by a gang of three men, after which the instrument, etc., was placed by the installer and helper.

All material was carried by the gangs, and if more was required a man was sent from the job to the storeroom for it. If a ladder was necessary, two men left the job and brought the ladder back with them. At that time wagons were used only to deliver roof fixtures, subscribers' sets and local battery materials.

We will begin now with the period of rapid growth in stations, which will show, as usual, that the most important factor even in station installation costs is the business policy of the Company.

As the stations increased estimates were made larger, the underground plant was extended, more terminals were placed, and the last general system exchange in Philadelphia replaced with one of the common battery type. This last change meant the elimination of local batteries.

(Some of this "ancient history" is hearsay on my part, but it emphasizes the main point which I want to bring out—that great improvements are not entirely a matter of good supervision, but are generally the result of the ability to grasp opportunities presented to us by absolute changes in the art for which our Engineering corps is responsible. These changes, in turn, are frequently made imperative by the changes in our business policy. The speed with which a man on the job perceives and utilizes his opportunity is the all-important thing for him to remember.)

This increase in the number of terminals reduced the length of loops, and brought about the first reduction in the construction organization. The gangs picked their own pairs and placed the jumper and O. K.'d open loops to the house.

This was followed by a reduction in the number of the gang from five to four men, and the gradual dropping of the installer's helper. It was still necessary, however, to use five men, four in the gang and the installer, to complete the installation job. I remember—and I guess a great many of you do—the way in which some of those old-time gangs did their work. The foreman was strong on supervision (?), generally in the most comfortable position he could find; one man did most of the work and the others helped—at times.

As business still continued to increase additional terminals were placed and real block wiring and the wall junction box system of distribution were extended throughout the city. It was then found that a great many of the loops could be constructed with three men instead of four,



This illuminated Blue Bell sign is now located on the south end of the Company's general office building, at 1230 Arch Street, Philadelphia. The circle is 25 feet in diameter and was so designed to give an appearance at a distance of the standard seal trademark. There are 478 5-watt Tungsten lamps used, 129 of which are blue, forming the outline of the bell. The remaining lamps forming the letters and the circle are white. The sign is seen by northbound travelers on 13th Street and by others in a large radius south of the building.

[The photograph was taken at night.]

and in some cases the installing was done by a member of this gang.

In 1903, I think it was, we decided that we were doing enough business to warrant the use of teams for delivery of material and some transportation of the gangs. This was a great step in advance, as it eliminated most of the lost time due to leaving the jobs for material or ladders, and enabled these men to report on the jobs and begin work considerably earlier than by the previous method.

Block vs. Pole Distribution

During 1906 subscribers served from block wiring distribution equaled and passed the number served from pole distribution. During September, 1906, 550 stations were completed on open loops; 538 on block wiring loops. During December, 1906, 521 stations were completed on open loops, as against 600 stations on the block wiring type. This marked an epoch in construction work and also indicated that terminal poles were being replaced by wall box type of distribution.

This had become a necessity on account of the rapid growth in lines, cheaper loop construction from the wall boxes, and also because an overloaded terminal was and is a great source of trouble from damp weather and liable to be dangerous during severe storms.

These changes, as indicated, resulted in a somewhat separate organization for the construction of open and block wire loops. For the former, three and sometimes four men were and are still used. This number is necessary on account of the height of the terminal poles, housetop work and the crossing of electric light and trolley wires. This gang now consists of a foreman who really works and two climbers, and in nearly all cases a wagon with single or double team, which carries this gang and the necessary material from place to place, the driver of which assists the gang as a groundhand when possible.

For the latter (block wiring) two men were used, and the installing of the instrument was done by one of the two.

About this time—that is, the latter part of 1908—it was found that disconnections, all installing and a great many changes were being

completed by one man. These men were known as climbing installers and were rated accordingly. In addition to this, all material, both inside and outside, for these block wiring jobs was delivered to the address, generally, the day before the work was to be started.

We also discovered at this time that with a two-men gang one of the two men was frequently delayed, due to finishing his part of the work first, and the time seemed ripe for another change in organization. It was then decided to try the experiment of constructing some block wiring loops and the associated inside work with one man. This organization was officially commenced in the Central district about May 1, 1909. The experiment worked so well that by September, 1909, taking the city as a whole, 36 one-man gangs were in the field and by September, 1910, 53. This meant that nearly all of the work from the wall junction box to and including the placing of the instrument was being completed by one man.

Let me repeat that the important factor in any great advance in our work is the business policy of our Company. Following that with efficient engineering and the intelligent grasping of these opportunities we have seen in one branch of our great industry the reduction of the use of eight men on one job to one.

Certain Costs Discussed.

I am sorry not to be able to show the cost figures which correspond to these various organization periods, but I was unable to find sufficient information prior to the last quarter of 1906. Even beginning with this date I can show labor costs only for open and block wiring loops.

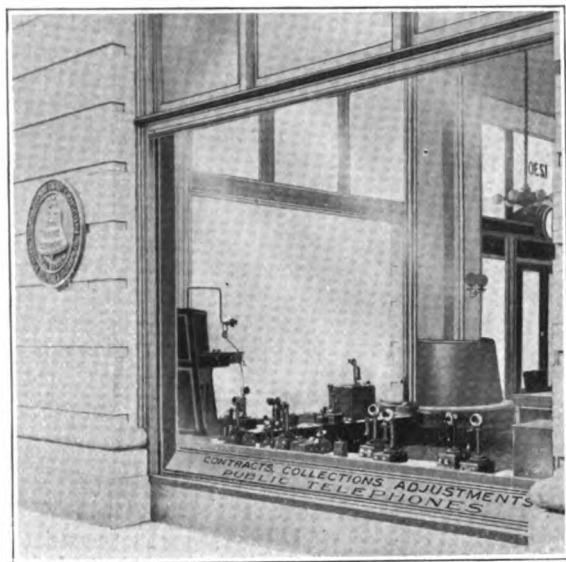
Time per Loop Study—Phila.

	Open.		8 months		Septem-ber
	1907	1908	1909	1910	1910
Hours Per Loop...	7.45	6.49	6.19	5.22	4.38
Feet Per Hour...	43.76	52.33	63.47	71.98	71.07
	Block.		Inside.		
Hours Per Loop...	5.41	3.88	3.45	2.97	2.51
Feet Per Hour...	30.68	42.19	46.80	55.58	53.01
Hours Per Loop...	3.19	3.51	3.24	2.84	2.98
Feet Per Hour...	16.80	15.98	18.05	20.28	20.86
Demerits Per Inspection		6.95	6.00	3.88	2.54

This is due to the frequent changes in method of keeping records and accounting. Three instances are the crediting of recovered wire to open jobs, which was the practice of 1906 and 1907, including reused loops with those entirely new and the combining of inside and outside loop costs as a unit. Both the last two being the practice previous to 1909, the labor cost shows a steady decrease in the labor for both types of construction and the records of time per loop show the saving in time and increase in loop feet constructed per hour. More credit attaches to all records in 1909 and 1910 because, as previously stated, prior to that time the figures included reused loops, which by the figures in 1909 and 1910 were of great assistance in lowering the general average in previous years. Note that the references just mentioned which would indicate an improvement in certain labor costs are not due to any marked change in the length of loops.

Philadelphia Unit Labor Cost Study

	Last quarter 1906	1907	1908	1909	6 mos. 1910	Sept., 1910
Open, New...	\$5.06	\$3.54	\$3.20	\$2.93	\$2.49	\$2.21
Open, Re-used				1.72	1.87	1.14
Block, New...	3.19	1.91	1.74	1.74	1.49	1.25
Block, Re-used				.86	.63	.70
Inside, New...				1.71	1.56	1.52
Inside, Re-used				.99	.99	1.00



Window Display at Corner of Thirteenth and Arch Streets, Philadelphia

Station Installation

(Continued from Page 9)

The records of labor costs include all jobs, while those records which show hours per loop and feet per hour are taken from jobs which were completed without any excessive delay. This accounts for the greater gain in hours per loop than in labor costs for any corresponding period. These figures show you an actual gain of about 50% since 1906, and when it is realized that we expect to complete in Philadelphia over 65,000 loops during 1911, a gain of even a few cents per loop soon amounts to a very considerable amount of money. The demerits for each inside job are based on a predetermined schedule of penalties for defective work. A detailed improvement in the number of these demerits during 1910 is due in part to these demerits being taken into consideration before advancing installers or one-man gangs to the maximum rate of pay. This possibly indicates the value of a proper incentive.

Efficiency Factors.

Aside from changes in construction and distribution, there are four important factors which have been and still are of great value in advancing both the efficiency of the employee and the efficiency of the supervision.

- 1st. Monthly cost figures by districts subdivided into material, labor and supervision, etc. By studying the labor and material units the weak points may be readily ascertained.
- 2d. Competitive records between districts and employees based on speed and the quality of work as shown by demerits.
- 3d. The School for Installers.
- 4th. The examination system for increases of salary.

These factors combined give a man the opportunity to learn all the information at our disposal and also to let him see what the other men in the same class of work are accomplishing.

We have recently started a plan of paying first-class installers and one-man gangs the maximum rate of pay for each type of work based on these competitive records of speed and quality of work. This, although in an experimental stage, gives promise of being more valuable when in an improved form it can be extended to cover more branches of the work. Regarding the quality of the work, it may be interesting to know that the cost of outside repairs per

station has decreased from .138 in September, 1906, to .077 during September, 1910. Some of the credit for this reduction undoubtedly belongs to improvement in the construction of the outside wire plant.

The appearance of the inside job is particularly important, and is given careful consideration from the standpoint of the subscriber.

We have reached the stage when the block wiring jobs (which now outnumber the open jobs by more than two to one) and the associated inside work are completed by one man. It is also our practice to have the open jobs completed by two or three men and the driver of the team.

It may be interesting, particularly considering the number of men now used on open loop construction, to show at this time that the loop feet per open job has increased from 326 during 1907 to 376 during the first eight months of 1910. This shows that replacement of terminal poles by wall box distribution has now reached a point where the loops constructed for the remaining terminal poles are increasing in length.

Unproductive Time.

It is apparent that we cannot reduce the physical unit on block wiring and inside jobs, and due to the remaining high terminal poles, long loops, roof fixture leads, etc., it does not seem safe to further reduce the number composing the open loop gang.

If, then, we have provided the proper incentive for speed and quality which our records seem to substantiate, we cannot expect any startling saving in the future after a man or gang gets on the job and begins work. Assuming that this is true, we must look to the time for which the Company is paying, but for which no actual work is done, for the increase in efficiency in the future.

The two main causes of this unproductive time are:

1. Delays from any cause after the man has arrived on the job.
2. Transportation between jobs or the lack of it.

Our last record of unproductive time was kept for installers and one-man gangs only, as we have provided team transportation for nearly all gangs. The record showed a loss of 16%, one-third of which was due to "hold-ups" of every nature and two-thirds, or 11%, due to transportation. The 11% loss due to transportation varies from 25% in the Suburban district of Germantown to 7% in the Down Town district, and yet, as a matter of fact, Germantown, with a handicap of 18%, invariably does quicker work than that done in the business section.

Labor costs for Philadelphia for 1910 loop construction and rearrangement, not including supervision, will amount to at least \$150,000. If 11%, or \$16,500, is loss due to transportation, and we can reduce the loss even 30%, or \$5,000, per year, it is certainly large enough to warrant the attempt.

The most efficient job we could do would be to have one or any number of men arrive at the job, begin work at the appointed time and finish that job at the end of the working day. This we know is an impossibility, as the average one-man gang completes almost two combined inside and outside jobs per day and the open loop gangs as high as seven loops per day, and in addition about 80% of this work is completed the day it is started. The one-man gang's greatest efficiency, therefore, lies in the fact that in case of a delay of any kind or in going from one job to another only one man's time is lost—or, in other words, the unproductive time has been reduced to a minimum.

Delays due to right of way difficulties, lack of facilities, subscriber changing his mind, nobody to locate the instrument and house closed are causes for unproductive time which are somewhat beyond our control. The time lost due to these causes is reduced as much as possible by having a large number of jobs surveyed before a man is sent to do the work. I am also of the opinion that the recent instructions to leave a card in case the house is found closed will result in a further reduction of unproductive time.

Transportation of men and material seems to be the one factor we really should control. This is particularly true as the type of work which one man can complete increases, and as the Engineering Department from time to time, as in the past, gives us material which can be more quickly handled, and labor-saving devices which will all tend to decrease the necessary time to complete the job, which will in turn increase the unproductive time due to the necessity of more transportation. The greater number of jobs completed in one day, the greater the amount of travel and the greater the need for transportation facilities.

By our present system of wagon delivery we have practically eliminated the loss formerly caused by men going to the storeroom for material—a splendid step in advance.

At the present time one-man gangs and installers are supposed to report to the storeroom only once a week.

Skilled Men for Skilled Work

I believe it was Japan, during the war with China, who first organized a separate corps to do all the work of transporting supplies, pitching tents, etc.—formerly done by the soldiers. It seemed to be their aim that the soldiers who were trained and paid to fight should have all their energies conserved for that purpose and no other. I am often reminded of this when I see a man trained by this Company to run wire or install instruments, and paid in proportion to his ability, walking along the street carrying instruments and a heavy tool bag—work which any unskilled laborer could do equally as well.

We have skilled workmen and we have plenty of work for them to do, and I believe that efficiency will increase in proportion as we enable them to spend a larger percentage of their working day on the work for which they are trained and paid to perform.

I do not like to see a case of instruments arrive at one of our storerooms on a Western Electric Company wagon, because I know that those instruments will be removed one by one from the case and placed on shelves in the storeroom, and probably within two or three days they will be removed one by one and sent by another team to their destination. Why, with the opportunity of having the Western Electric Company storehouse in the middle of this city, can't we deliver those instruments from the Western Electric Company direct to their destination? These may sound like dreams which will be destroyed, possibly, by the short distance between jobs for the first, or the cost of assembling the instrument for the second. But these are only two of many cases where there is double work, lost motion and lost money, which are factors that can be corrected only by careful study of the present conditions.

Further Transportation Plans

I may add that we are now making a study of automobile and tri-car transportation, and there may be a possibility that hauling from the Western Electric Company storehouse to our own will develop as a by-product of this scheme.

As evidence of our faith in the possibilities in

transportation, we have already put one tri-car temporarily out of business. This was, of course, our first experiment and to be expected.

In another district we attempted, during a two days' trial, to demonstrate that one automobile truck can do the work of two teams, with the following result: I will give only the total for the two days of the automobile as against two single teams and two drivers—the estimated cost of one automobile being less than that of two teams:

	Automobile	Two Teams	
Mileage total.....	65.2	45.05	Gain 44%
" per day	32.6	11.26	per team
Deliveries	66	40	
Collections	51	62	
Stops	109	96	
Weight of all packages delivered	1912 lbs.	910 lbs.	
Weight of all packages collected	1392	1430	
Total weight	3304	2340	

If this method really proves out it may be possible that the use of two tri-cars will in turn prove superior to one automobile on the basis of annual charges.

The demonstration shows that the question is at least worthy of further investigation.

Here is one example of the result of a little thought in this line. In a certain district there was a gang who walked the streets constructing open loops at the rate of about four per day. A wagon hauled their ladders and sometimes their material. Sometimes it delayed the gang, and sometimes it was on time and did not. The gang was given a single team with the idea of hauling the men and material between jobs and to stay with the men while they were at work. The loops constructed changed from four to six per day, but the single team had to walk, as the load was too heavy for fast time. A double team was hired at an additional expense above the single team of \$1.50 per day, which resulted in a further increase of one loop each day, or a total of seven against the original four.

The average figures for open loop construction for this district for the four months previous to the hiring of the extra team were: Labor, \$4.29; total per loop, \$10.31; for the four months after the extra team was hired and transportation supplied: Labor, \$2.34; total per loop, \$7.25; a gain of 45% labor and 30% total.

This saving of \$3.00 per loop in a district which constructs nearly 100 per month will show a gain for the year of nearly \$3,600, in addition to the increase in revenue and satisfaction to the subscriber from a more prompt installation.

I believe there are many such opportunities as this illustration shows simply waiting for each particular case to be given careful study.

I might also add that the one construction district in Philadelphia which has been able to transport its men between jobs in addition to material always stands at or near the top for efficiency in cost in our competitive records.

There is another point which will bear careful study by both the supervised and supervising forces. Owing to the splendid amount of business which our Commercial Department has been giving us, we have all grown enthusiastic about replacing outside wire with cable. The advantages of cable over wire are too many to need discussion.

The average cost in place, including indirect charges of a 26-pair, 22-gauge, interior block cable and cable terminals, approximates 20 cents per cable foot. As interior block wiring costs about 3 cents per loop foot based on first construction costs, it is cheaper to place a 26-pair cable than seven interior block loops. Based on annual charges, it is cheaper to place a 26-pair cable than to place four interior block loops.

In spite of this we have many places in Phila-

delphia where there are from eight to twelve interior block loops in one run.

This is being corrected on new work, and for present conditions, as fast as it can be done economically, needless to say the placing of interior block cable proves out splendidly for the installation division, as it decreases both the length of loops and the time to construct.

We know from experience that the life of outside wire is not more than five years, due to replacement with cable, deterioration of fences or right of way difficulties more than to actual wear and tear on the wire. I am of the opinion that about the same life holds good for inside wiring. A new tenant, repapering or painting, changing the location or contract, generally means the changing of inside wires and very often before a period of five years. This construction should be done in the workmanlike and slightly manner, and according to the standard requirements, but there should be nothing purely fussy about a job which probably will not last over five years. I do not mean by this that we should lower any of our present standards, but I think we can safely assume that most of our present block wiring will be replaced with cable and that nearly all of our open loops will be replaced by block wiring or cable within five years, and unless the distribution is from cable now and the outside loop not over, say, 50 feet in length, it will not pay to overdo the construction by being too fastidious over the details, and at times there has been a tendency in that direction.

I have purposely omitted any reference to P.B.X. installation—first, because it is a subject in itself; and, again, because of the nature of the work and on account of the number of special jobs and special conditions it would be difficult to follow along the same lines as we have on the other branch.

That it is a large part of our work in Philadelphia will be realized when I say that 18% of the total of new stations completed during the first ten months of 1910 were connected to private branch exchanges.

From Eight to One Man

To sum up: We have followed the job of station installation for a period of about ten years. During that time the labor units have been reduced from eight to one and a great number of advances made from which we will never recede, and there should be many opportunities as great in the future.

The moral is this: The business policy of the Company as expressed through its Commercial Department starts and keeps the ball rolling, and remember, this Company is always going to grow.

Up-to-date engineering and the combination of these two give to us all our many opportunities to increase in efficiency and value, both to ourselves and to our Company.



Bell Seals
for
General
Distribution



These gummed seals, printed in blue on white paper, are now being used in large quantities by druggists and others throughout the territory. For sealing small packages, delivered by messenger, they are much more serviceable and handy than expensive elastic bands formerly used. The W. E. Co. carries them in stock awaiting requisition from the Commercial representatives.

Telephone Societies

The Telephone Society of Washington

J. Beetham, General Construction Foreman, Washington, D. C., addressed the members at the January 5 meeting on the subject, "The Duties of Linemen and Splicers."

Comments were made by Messrs. Hayward, Burton, Chew and Seely.

The Telephone Society of Baltimore

5 Light Street

February 17

The speaker and subject will be announced later.

Altoona Plant Class

1110 13th Street, Altoona, Pa.

January 17

Speaker: W. A. Kershner, District Plant Superintendent's office, Harrisburg, Pa.

Subject: "Plant Accounting Routines."

On January 3 the Altoona Plant Class held the first of a series of meetings for the purpose of reading and discussing the various specifications and accounting routines.

Z. T. Grover's paper on the "Distribution of Plant and Service Wire Construction" was commented upon by Messrs. Botty, Kinsely, Dixon and Miller. These comments were in turn discussed by about 40 men.

Reading Plant School

Church Street

January 24

Subject: "Underground Conduit."

Reader: J. J. Hartman.

Comments by Messrs. Hohl, Hasskarl, Fegley and Green.

The Spare Pair Society

1414 Arch Street, Philadelphia

January 20

Speaker: H. Mouradian, Engineer.

Subject: "Long Distance and Toll Transmission."

Atlantic Telephone Society

14 S. New York Ave., Atlantic City

January 17

Speaker: Clarence Zander, Traffic Supervisor, New Jersey District.

Subject: "Traffic."

The Bell Club of Germantown

26 West Cheltenham Avenue, Philadelphia

January 24

Speaker and subject not announced.

The Cross Talk Club

The annual dinner will be held at Kugler's restaurant, Chestnut Street, above Broad Street, Philadelphia, January 18, at 7 o'clock. A number of officers and out-of-town guests will be present.

West Philadelphia Telephone Society

Lancaster Ave., below Fifty-second Street

January 17

Speaker: A. DeB. Robins, Traffic Superintendent.

Subject: "Traffic."

All West Philadelphia male employees are invited to be present.

Baltimore Division**J. C. STACK, Division Correspondent**

Baltimore. A subscriber recently asked for a rat-proof cord for his telephone because he was bothered with those pests.

December P. B. X. applications are:

Y. W. C. A., 8 stations, 2 trunks; Salesman, King.

R. W. Norris & Co., 8 stations, 2 trunks; Salesman, McIntire.

For the new heart-testing telephone plan at Johns Hopkins Hospital we have installed a Monitor board and 8 stations, each station being equipped with a head receiver and a chest transmitter. The board is in the basement and one station is in each of the 8 wards.

A real estate dealer wrote:

Yesterday morning I requested the removal of my telephone from my residence at Walnut and Seventh Avenues to my new residence at Walnut and Third Avenues, and asked that this removal be made to-day if possible. Your men were at my residence at 9.30 this morning and in less than one hour my telephone was again in commission at my new residence with no change of number and no inconvenience whatever.

I can but feel that I would be unjust as well as ungrateful if I allowed such favors to pass without recognition, so I take this means of thanking you for your prompt and thoughtful attention, and assure you that it was thoroughly appreciated. Bespeaking for you the success such methods merit, I remain,

A fire alarm telephoned from the Mt. de Sales Convent, on the Frederick Road, probably saved that building from destruction. Aid was summoned from a nearby town.

On January 4 some one at the Elkridge Fox Hunting Club called the Tuxedo operator and stated that the building was on fire and the nearest fire alarm box was one-fourth mile distant. The operator notified the Baltimore County Fire Department stations at Roland Park, Mt. Washington and Gorantown. The first named company made the two-mile run with a 90 horsepower autotruck in 4 minutes, and to the all round promptness of all interested is due the saving of the building. The cook said: "I jes done hung up the telephone and yere comes de engine."

Although a high wind was blowing, the damage to the building amounted to only \$300.

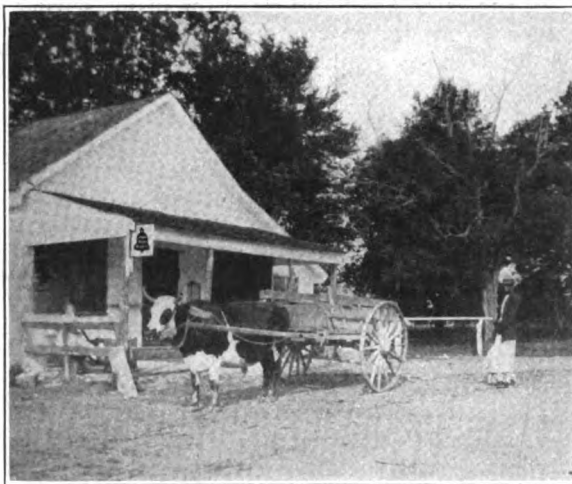
At a meeting of the Board of Estimates one city representative insisted that his residence extension station should not be disconnected in order to reduce the city's telephone bills. The discussion which followed caused the newspapers to reprint much of the argument under the caption, "Objects to Shirt-Tail Telephoning." [That was the term used by the representative in explaining why he needed a telephone upstairs as well as down-stairs.]

At Ellicott City a pharmacist advertises on slips, "Let the Telephone Do Errands For You. Don't think you are imposing on our good nature by asking us to deliver even the smallest thing," etc.

The Plant Department is hurrying the work of overhauling the plant recently purchased from the Citizens' Telephone Co. of Howard County, Md., which went out of business in November. The lines will connect subscribers in the vicinity of Elioak, Clarksville and Dayton who were formerly serviced by the Citizens' Co., together with a number of new subscribers who have not heretofore had the service of either company. It will be operated from Ellicott City. This will add 21 stations to the latter exchange and open six miles of territory along the Ellicott City and

Clarksville Turnpike which has not heretofore been reached by Bell lines.

In arranging the telephones for the Aviation Meet held at Halethorp, Md., all records for trenching, laying and covering 3-inch wood duct were broken by a construction gang in charge of District Foreman R. G. Tinkler. Seven hundred feet were laid in 20 minutes. During the "Meet" an order was received from the Baltimore *Evening News*, at 11.45 A. M., for an additional station on the Aviation Field, and the installation was O. Ked at 12.35 P. M.



The Old vs. the New. A Chance Photograph of an Ox Cart and a Bell Sign at Lloyd, Dorchester Co., Md.

Dover District. A few days ago a subscriber called for the "Complaint Desk," and the operator rang the Commercial Office. A clerk answered the call, and when the woman at the other end began to explain why it was that certain articles of feminine apparel were not as she had ordered he succeeded in telling her there must be some mistake. She wanted the Complaint Desk at one of the Philadelphia department stores, but absentmindedly forgot to tell the operator when making the call.

Seasonable calls noticeably increased the traffic load at Dover on New Year's Day. Sunday was very rainy and there was much visiting by telephone.

Cambridge, Md., in the Dover District, boasts of the only rural line, as far as can be ascertained, that is to be built and owned exclusively by colored people. This line is to be known as the Hurlock & Petersburg Telephone Co. All the subscribers will be colored people who are, without exception, property holders and progressive farmers in this section.

Cambridge has more colored subscribers than any exchange in the District, there being one colored physician and thirteen colored merchants in that town who have telephone service. They are all subscribers of good standing and pay their bills promptly. None of them has ever been disconnected for non-payment.

St. Michaels, Md., in the territory of the Farmers' & Merchants' Telephone Co., has a colored firm engaged in the packing of crabs and oysters. This firm is said to do more business than many of the other packers because of its excellent reputation for honest goods and fair dealing.

Near Dover there is a community of colored people who are among the most progressive farmers of this section. Nearly all have telephone service and use it extensively in marketing their farm products. They do scientific farming and several are noted for new brands of berries and small fruit that they have developed from the smaller varieties of a few years ago. Several have succeeded in obtaining second crops of strawberries and tomatoes. **Prince.**

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

The suggestion books with detachable leaves seem to have more than met expectations throughout the Harrisburg Division, as well as in the other Divisions. At Berwick, Wilkes-Barre District, Wire Chief A. R. Dykeman turned in 12 slips, from which 6 stations have thus far been "signed."

The following list of results covers the Harrisburg Division prior to Christmas:

	B'ks Dist'b'd	Emp's Who Have Ret'd Slips	Slips Ret'd	Stas.	Rev.
Allentown	32	16	57	18	\$338.80
Altoona	18	11	24	4	78.00
Harrisburg	59	15	27	10	199.80
Reading	58	27	59	13	281.80
Scranton	43	10	50	19	461.50
Wilkes-Barre ..	80	35	87	23	352.40
Williamsport ...	42	11	36	3	40.80
York	15	11	37	19	294.00

Total 347 136 377 109 \$2,047.10

Altoona District. The Mayor of Altoona in his annual message to the City Councils said:

"The Bell Telephone Company laid 9,000 feet of conduit, it being the only company to lay any conduit during the past year. It also installed 16,000 feet of cable during the same time."

The local papers also commented on the junction box work that is replacing pole distribution construction.

At 6 A. M., December 30, a \$100,000 fire burned out the center of the town of Philipsburg, a Centre County town with about 5,000 population. Aid was summoned from Tyrone and Clearfield, but by the time that the apparatus arrived the fire was under control.

Although our central office, being in the path of the flames, was destroyed, practically all service was restored within 36 hours.

At 8 A. M. an emergency board and equipment (always boxed and ready at Eleventh and York Streets, Philadelphia) was on the way and arrived by express at 5 P. M. At 1 P. M. a special train arrived from Altoona equipped with a baggage car loaded with cable and 25 men. Work began immediately upon its arrival, so that when the switchboard was received, four hours later, preparations for its installation in the Barnes building had been completed.

Work was continued all night and the next day, and at noon practically all of our subscribers were receiving service.

Reading District. Whitner's department store in Reading has arranged for free toll service for its customers living in 20 surrounding towns in addition to all of those in Lebanon County. This is the first arrangement of the kind in the Harrisburg Division. In the local papers large spaces were used to describe this plan to the store's customers.

To aid in handling the telephone business order blanks were provided by the store for the clerks' use in jotting down these orders.

Scranton District. Three telephone companies—the Wayne and Lackawanna, the Wallen Paupack and the Wayne and Pike companies, were merged and consolidated into the Paupack Telephone Company, at a meeting of the stockholders in all the corporations, held Wednesday. The new company is capitalized at \$50,000, and its officers have already taken up the consideration of plans to improve the service to the subscribers and to extend the system.

Direct line service, equipped with an annunciator drop and a loud ringing gong, has been installed in the electric light station at Wayne for public use in reporting fires. The gong will ring continuously until the man in charge restores the drop.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

FEBRUARY 1, 1911

NO. 3

The Solid Back Transmitter—By Emile Berliner, Its Inventor

MR. CHAIRMAN AND GENTLEMEN: If we would divide the history of inventions or the technical development of science into off-hand periods, we could do so by starting with the time of the Greek mathematicians; we would then have to bridge over a considerable period until we arrive at the invention of the printing press in 1438; then we would come to Newton's time and the discovery of the principles of gravitation and his celebrated work on Celestial Mechanics in 1675. Next there would be a century intervening when we would get to the steam engine in 1765. Then would follow photography in 1820, magneto-electric induction in 1831, the telegraph in 1844, the telephone in 1876, and finally the flying machine in 1904.

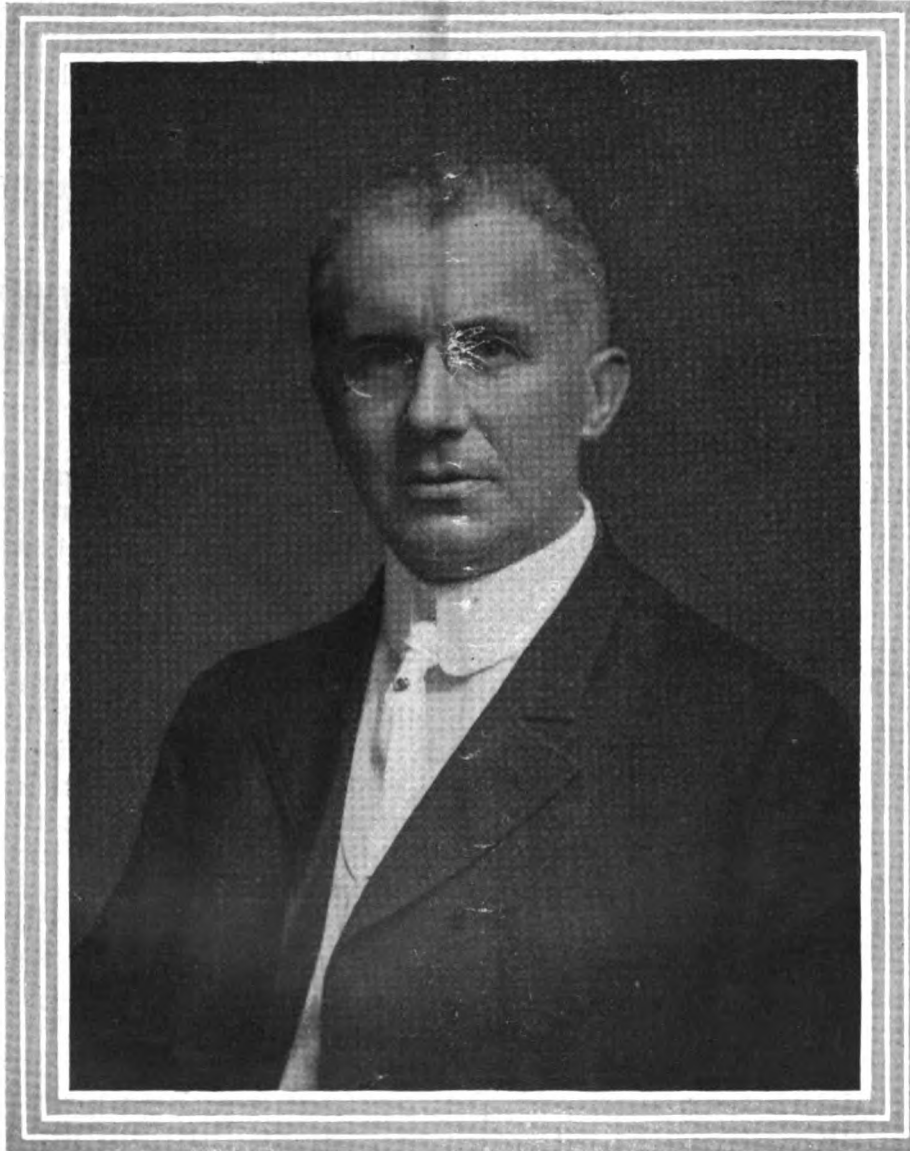
The telephone is distinguished in this enumeration because with it started a very marvelous development in science, and between the invention of the speaking telephone and the flying machine there were the following discoveries and inventions put before the world: the talking machines, the commercial electric light, the Roentgen rays, color-photography, wireless telegraph, liquid air, and radium. Of course, I do not mention a great many other important progresses in invention, but I would call those that I have mentioned "epoch-making," and among them the speaking telephone undoubtedly ranks very high.

In 1888 I read a paper before the Franklin Institute on the invention of the gramophone or disc talking machine and its first public exhibition and, having seen the development of the telephone from its very childhood, I could not help starting my discourse with reference to the invention of the telephone, about which I stated as follows:

"The last year in the first century of the history of the United States was a remarkable one in the history of science. There appeared about that period something in the drift of scientific discussions which, even to the mind of an observant amateur, foretold the coming of important events.

"The dispute of Religion versus Science was

Historical Address Delivered Before
The Telephone Society of Washington,
December 1, 1910 ∴ ∴ ∴



once more at its height; prominent daily papers commenced to issue weekly discussions on scientific topics; series of scientific books, in attractive popular form, were eagerly bought by the cultured classes; popular lectures on scientific subjects were sure of commanding enthusiastic audiences; the great work on evolution had just commenced to take root outside of the small circle of logical minds from which they had emanated and which had fostered them: scientific periodicals were ex-

pectantly scanned for new information, and the minds of both professionals and amateurs were on the *qui vive*.

"Add to this the general excitement prevailing on account of the forthcoming centennial celebration, with its crown event so dear to this nation of inventors, the world's exhibition, and even those who did not at the time experience the effects of an atmosphere pregnant with scientific ozone can, in their minds, conjure up the pulsating, swaying, and turbulent sea of scientific research of that period. Science evidently was in labor.

The Speaking Telephone.

"The year 1876 came, and when the jubilee was at its very height, and when this great city of Philadelphia was one surging mass of patriots, filling the air with the sounds of millions of shouts, a still small voice, hardly audible, and coming from a little disc of iron fastened to the center of a membrane, whispered into the ear of one of the judges of the exhibition, and one of the greatest of living scientists, the tidings that a new revelation had descended upon mankind, and that the swift and fiery messenger of heaven's clouds had been harnessed to that delicate, tremorous, and yet so potent form of energy called the human voice.

"The speaking telephone had been born.

"The stimulus which this event gave to science can best be measured by the enormous advance made since, especially in that now most prominent branch, electricity."

I do not believe there are many of you here to-night who can imagine the world without the telephone, and I thought I

would give you a picture—in an off-hand statement—of thirty-three years ago, when there was no speaking telephone.

Thirty-three Years Ago.

I lived in Washington then, as I do now, and there was one little store that dealt in electrical goods, the store of Mr. George C. Maynard. Mr. Maynard is still living, and is in charge of the scientific department of the

(Continued on page 3)

The Telephone News

Published the first and fifteenth of each month in the interests of
 The Bell Telephone Company of Pennsylvania
 The Delaware & Atlantic Telegraph & Telephone Co.
 The Central District & Printing Telegraph Company
 The Chesapeake & Potomac Telephone Company
 The Diamond State Telephone Company

U. N. BETHELL, President P. H. BETHELL, Vice-President
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 to whom all communications should be addressed

SUBSCRIPTION PRICE:
 To employees of the above Companies NO CHARGE
 To employees of OTHER BELL COMPANIES, \$1.50 per annum,
 payable in advance

Vol. VII FEBRUARY 1, 1911 No. 3

Two Duties.

A—Go
 B—Speak

THE amount of interest which is at present manifested in the proceedings of our Telephone Societies should be a source of unusual satisfaction to every Bell enthusiast.

These societies have in previous years carried on a splendid work against occasional odds of disinterest and inconsideration. But the season of 1910-11 indicates positively that we shall fully realize on the conceptions of those few men in division and district centers who have put forth such a splendid effort for our benefit. The serious-minded employee must now recognize the work of these Societies as an important part of his needs.

From all quarters we learn that attendance is booming, and that the interest displayed is becoming less passive. The excellence of the speakers, together with the directness with which they have attacked their subjects, has made many more or less perfunctory attenders appreciate that real benefits are to be derived from these meetings.

May we, however, add an admonitory word to the commendatory ones? Two classes of employees should be roused to a realization of what these Telephone Societies stand for. Unfortunately, there are still a few almost invariable stay-at-homes, who cannot or will not awake to an appreciation of how many telephone classics are emanating from these meetings, or how earnest a thought should be given to the

fact that a real educational factor is being overlooked.

Our officials have repeatedly said that a most important duty devolves upon each of us. If we were doing the work of certain mechanics or were tillers of the soil, the total loss, which poor work would entail, would be very limited indeed as compared with the present actual facts. But our work will require the best efforts of broad-minded and versatile men. It will necessitate our *being* and *keeping* keyed up to the best that is in us. Whether we be outside or inside men, there is the same necessity to store away every bit of telephone knowledge which comes our way. We must do more; we must go after that knowledge.

The purpose of the Telephone Societies is to bring definite, helpful, practical enlightenment within our reach. They meet us more than half way by furnishing the most experienced men in every branch of the work. This fund of information which these men bring should act like a tool-sharpener and oiler for us. It should make our work run more smoothly and help us to gain our ends more quickly. Are we accepting and using it by our presence at the meetings?

The second class of men who are not doing the societies and themselves justice are the never-speakers. It has been frequently commented that some of the best discussions of Telephone Society papers occur at lunch hour, when here and there telephone men get together on the day after the meeting. And is it not true that many a man has had a real thought or query or objection during the meeting which has gone for naught, because its originator felt loath to rise and state it?

Perhaps we are timid or fearful of criticism, or perhaps the presence of the boss has its imposing effect; but the man who earnestly and appropriately speaks out in elaboration or criticism will find himself more respected and valued by his co-workers, and—what is perhaps best of all—will experience a feeling of confidence and keen satisfaction that will stir him to an even better effort next time.

To these two classes of employees we offer but two words of counsel—and we know it to be particularly good counsel—bestir yourselves!

The Spirit of Fraternity

Men do not, as a rule, discuss their lodge affairs with outsiders. It would be in bad taste, even when not an infraction of rules. But members of the same organization frequently get together and talk intimately of the things with which they are concerned. Therefore, since it is among ourselves, it is with no apology that we speak of a most pleasing by-product of our own occupation. We refer to what has been called the Spirit of Fraternity—the splendid feeling of brotherhood found among “Bell Telephone” employees throughout the continent.

Instead of apologizing, we feel that eulogies should be issued recognizing and encouraging this force.

Just when, where and why the quality entered our ranks would be hard to state. The older employees can no doubt recall instances of it in the pioneer days. But they were few and scattered. It is comparatively recently that this element—elusive, like the others with which we deal—has fully manifested its presence. One man went “down east” and was hailed as a brother by the local “Bell” officials. Another sought the Pacific coast on a quest of health. He found it, and the spirit as well. Still another, traveling south, returned an enthusiast on the subject. It seems to dwell wherever our lines penetrate, which is to say—everywhere. Again, the cause of it all is hard to name. Conventions, society meetings, visits up and down and across the country, all these things probably were attendant on its origin; but there must have been something more. Real fraternity is spontaneous to a great extent; and for that reason one is led to believe it springs, in this case, from the very fascination of our work. We are likely to be near the truth when we say common fascination makes fraternity. And there isn't the slightest doubt that fraternity renews fascination.

It is a good thing all around, and there are a multitude of reasons why we should congratulate ourselves on the condition. It means health and happiness to the whole household, and new vigor to the sterling virtues—Mutuality and Coöperation. Let us keep in mind the statement credited to one of our officials to the effect that the Spirit of Fraternity existing among “Bell” employees is unexcelled by that of any secret order in the land—and remembering, let us foster the spirit, and fraternize at every opportunity.

The Solid Back Transmitter

(Continued from page 1)

National Museum, and I know he would enjoy being here to-night. He had a store on G Street, between 14th and 15th Streets—a little bit of a store, not larger than this corner here—and there were a few keys and sounders and bluestone batteries (they did not have any other to speak of) and some relay and some tapes, and some wire, and probably one or two more highly scientific induction coils and galvanometers. But that was all. That comprised the electrical stores of Washington. There was no commercial electric light, but there was at the Capitol, near the dome upstairs, a large room in which was a big battery consisting of about one hundred so-called Smee cells. At that time these were very well known among scientific men. Each consisted of a jar full of sulphuric acid and water, a piece of carbon and a piece of zinc. That was a Smee cell. Of course, you know it polarized very quickly. On every 4th of July the daily papers announced: "To-night the electric light will be shown from the Capitol," and everybody was down on Pennsylvania Avenue. All at once we would see a brilliant arc light at the lower part of the dome. The electrician was at work. By and by it went out because the battery polarized, and then they had to wait about twenty minutes or a half an hour, and then we had another glimpse of the shining electric light. It was quite an interesting exhibition and everybody enjoyed it very highly. There were no dry cells known, and there was no electric bell. The house bells were mechanical. In the old times the bell wire was used, and every blacksmith, or every locksmith, knew how to fix the house bell, and from time to time the wire would stretch, or something of the kind, and they had all kinds of trouble with the bell. Of course, it was a pretty good sized bell, and gave the old-time jingle such as you hear now and then in boarding houses.

Then there were horse-cars. There were no electric cars, simply horse-cars. Afterwards they had the cable-car, and one day, as you may remember, the power-house was burned, and they had to supply horses for the cars. I recall that I then had the privilege of riding up to Mt. Pleasant in a mule car. They got the mules over in Alexandria to help out. Of course, that required some time to get around, but people had plenty of time then. If you wanted anything, you had to send a messenger, and you could attend to only two or three transactions a day, where you can now attend to a hundred with the aid of the telephone.

There was but one electrical paper in the United States, and that electrical paper was the official organ of the Western Union Telegraph Company, and was known as the *Journal of the Telegraph*. It came out once a month on a little bit of a sheet, such as you showed me, Mr. Chairman, relating to your own telephone journal—and there were one or two semi-scientific articles, and the rest was taken up with the official orders of the Western Union Telegraph Company.

Those were the conditions thirty-three years ago. Then came the Centennial Exposition, and Professor Bell has, in that connection, told you himself, I am informed, how he invented the telephone. I need say but very little upon the principle of what you know as the receiver to-day—a diaphragm, a magnet and a coil—while at the Centennial Exposition it was not an iron diaphragm, still it was a diaphragm, and the Bell telephone was used both as a

transmitter and as a receiver. We did not have for several years anything of what is now known as a transmitter, except that The Bell Telephone Company, in the early years, put out what was called the box telephone, which was a large Bell telephone, as a transmitting instrument. You have no doubt seen pictures of them, or maybe an original instrument. Some are in the National Museum. The box telephone was fixed against the wall, and you spoke against it by getting quite close and pressing your mouth into the mouthpiece. Then you had the small telephone with which to listen. That was the system in 1877 and 1878, in the first telephone sets that were put out. The change did not begin until about the latter part of 1878, or the beginning of 1879.

Early Experiments.

I had become interested in the telephone in 1876. I had heard of the Bell telephone, although I had never seen it. I had thought of it, and I got some little electric wires and some other things from Mr. Maynard's store, and some batteries, and it occurred to me right away that the proper manner to transmit speech should be by means of the battery current. I thought since Mr. Bell had made the invention with the magneto current it might be possible to do it some other way, so I set to experimenting in the latter part of 1876, before the Bell telephone was fairly known, except to a few scientists or a few people who had seen it at the exhibition in Philadelphia. I was then clerking here, and I spent my leisure hours on Sundays and evenings in experimenting. It occurred to me that what I should be able to do would be to take a diaphragm and a contact-pin, or screw, touching it in the center, and in some way produce an undulatory electric current by continuous action of that contact, not by interrupting it, but by some way of continued current. I did not catch on right away to the pressure principle, but I thought if I would take a flat spring and attach that to a screw, I could adjust that spring against the diaphragm (and the current, of course, passing across the contact)—so that if I spoke against it, the pressure of each vibration would give a little broader contact of that spring against the diaphragm and thereby produce electric sound waves in the current.

That was the first idea, and I rigged up a sort of telephone, consisting of a membrane and a piece of spring in front, and I tried to transmit speech, but it would not work; somehow or other there was no action that I could discern. Of course, with the sensitive receiver of to-day it might get some results, but the real results would not be such that the flattening out of that spring would produce sufficient of variation to give sufficiently loud speech.

Some Telegraphic Knowledge.

There was at that time here in Washington a gentleman named Richards, who was the chief operator of the fire alarm telegraph office. I knew him very well, and he invited me to come up and visit him at the fire alarm office. At that time, of course, they had the bluestone cells—I do not know whether they still have them—and the usual paraphernalia of instruments and of alarm bells, etc. One day—it was in the early part of 1877, in January, I think—I went up to see him, and, since I had gotten interested in all kinds of electrical experiments, I had tried to learn telegraphy. I said to him, "I have been practicing telegraphing, and I want to show you." He said, "Come back and let me hear what you

can do." There was an instrument which was out of use, and I began to send an alleged message. He said, "Hold on, this is not right. You must press down a key—not simply touch it."

I said, "What difference does that make whether I press it down or not, if it makes a contact?"

He said, "Yes, but you have to make a *firm* contact; otherwise your message might not be readable at the other end; for instance, in long distances where the resistance is high, you have to press down considerably, in order to get efficient long-distance work in telegraphy. We use men for long-distance work exclusively because they naturally press down hard. Women would not do that, and, therefore, for long-distance work women are not adaptable."

That struck me very forcibly. I said, "Do you mean to say that more current passes over that contact when I press hard?"

He said, "Decidedly."

I said, "All right. Good-bye."

I went home, and I knew I had it. I rigged up a diaphragm and made a contact with a steel button, polished it up nicely so as to make a clean contact (it is still in the National Museum in one of the cases). I began to adjust it, until the galvanometer showed the current. I then very gently pressed, and found that each time I pressed against it I got the galvanometer to deflect a larger angle, and I knew the principle was right. I want to say right here that my receiver was not in a good condition; it was still the old membrane, the skin membrane with a patch of iron glued to the center. I had not then heard of Bell's further development of the iron diaphragm, which came a little later. It came out only in the patent of 1877, which showed for the first time an iron diaphragm. I did not know at the time that my instrument had an iron diaphragm—quite a good-sized diaphragm—and a steel button at the end of a screw, and while I connected it to the battery all at once I heard a sound coming from that iron diaphragm. I listened and I took my terminals and connected them off and on, and I heard a loud tick, tick, tick. That was strange to me. So I took a tuning-fork and tied one of the wires around it, to make an electric connection. I then struck the tuning-fork and held the prongs to the other wire, and, lo and behold, the sound came off that tuning-fork—came from the diaphragm. Now, I said, I have here something entirely different from Mr. Bell; I have a transmitter which is different from his, and a receiver which is different from his. And so I made two instruments, consisting of nothing else but an iron diaphragm and a steel ball, and I connected two of them, one upstairs and one downstairs in the building, three stories, I think. I had a friend talk into the instrument upstairs and I listened carefully downstairs, and I could plainly understand what he said. It was, I claim, the simplest instrument—electrical instrument—ever made for transmission and reproduction of speech.

The Loose Contact

Now, let me speak about the loose contact. It was something to be avoided in electricity. It was the rule, and it is to-day, that you screw everything tight; any other contact is a bugaboo in electricity. A loose contact is to be avoided, as it burns the terminals, or does something of the kind, and it does not transmit the current properly. I had, however, as I had showed you, found a way to utilize that which had been avoided before, and to make a speaking telephone out of it. Well, I tried

The Solid Back Transmitter

(Continued)

hard to make the loose contact receiver talk loud. I continued experimenting in my leisure time, and in the early part of 1877, and I filed my petition for patent, first in the form of a caveat.

By and by I found that the trouble I had was that when I adjusted one instrument and went to the other one downstairs—or in a stable over in the yard—and adjusted it, before I got through the warmth of the current would bring that out of contact, and I could not transmit anything. It occurred to me, why could I not interpose two induction coils, and use the primary current on each end in circuit with each instrument, bring the secondary over the line, and again bringing it through the secondary of a second coil, and affect the receiver or other contact instruments that way? That was the first time an induction coil had been used in telephoning. In fact, I got a patent for that the next year, before even there was any use for it, because the transmitter was not introduced until a year after I got the patent for the use of the induction coil. The idea worked, and for a long time during that year and the next I carried on experiments with friends of mine that way. The reproduction was faint, but it was there.

The telephone remained, so to speak, in obscurity. The people heard of it, but they never listened to one, or saw one. They thought it was a little plaything, and there seemed to be but little progress made. All at once we heard that they had been used on longer distances, and a few people in Massachusetts were using it for intercommunication between their houses, but I was still here in Washington waiting for my opportunity. Then it was said that Mr. Edison had also invented a new telephone; I heard of that. He had what was known as the carbon button transmitter. He had taken some lampblack and compressed it into a button, and put two platinum discs on it. That was the old Edison telephone, and his idea was that when he spoke against the diaphragm and compressed that lampblack inside the carbon button he would get speech through that. He was on a tack similar to mine, only in some other direction. His idea was to compress loose conducting matter and get the undulation of the voice, so to speak, or have an undulatory current by that means. I want to point out here that in my earliest application, in the summer of 1877, there was shown a hard carbon button, so-called gas carbon (they did not have electric light carbon at that time; that came a year later)—and a round metal bead against it. That was to be used as a loose contact on the surface, not as Mr. Edison wanted to use his by compressing by a soft carbon button, and that figure is still on record in the Patent Office, and became a prototype of what was afterwards the Blake transmitter, of which I will speak later.

Further History

I told you that I filed my application for patent and soon I was informed by my patent attorney that there was a big interference declared in telephone applications. There were not so many; they involved Mr. Bell and Mr. Gray and Mr. Edison, and one or two other people, of whom I had never heard, and myself. By and by The Bell Telephone Company instructed its attorney here, Anthony Pollock, to find out, among the applications in the Patent Office which were in interference

with Mr. Bell, whether there were any which they had rather try and control. Mr. Pollock went over the applications and reported afterwards—so I heard—"The only application that you would want to control is that of Mr. Berliner, of Washington." Whereupon Mr. Thomas A. Watson, who was Mr. Bell's assistant, and who had been appointed Superintendent of The Bell Telephone Company, came to see me. I took him around to my little room on Sixth Street, between H and I, and exhibited to him my loose contact telephone, and he was very much surprised. He said, "We want that, Mr. Berliner." And soon afterwards Mr. Gardiner G. Hubbard sent for me and said, "Mr. Watson and Mr. Pollock tell me you have something valuable; we want that, and I would like to make a contract with you." Bye and bye Mr. Theodore N. Vail, afterwards the President of The Bell Telephone Company, and now also President of the Western Union Telegraph Company, who was then Superintendent of the Railway Mail Service in Washington, joined Mr. Hubbard and his associates. Mr. Hubbard had gotten hold of him through some investigation that Congress had asked him to undertake as Chairman of some committee. He came across Vail and was very much impressed by him, and said, "Mr. Vail, we would like to have you manage and work up the Bell telephone"—which then did not exist commercially. I was in a store here then on Seventh Street, between H and I, and Mr. Vail was in the Post Office Department, right at the corner of F and Seventh Streets, and it was very easy for us to meet and have discussion about our contracts.

Identified with Bell Interests

He was very much interested in the experiments, as a matter of course, and after a while we drew up a contract, which I signed and the Company signed, and from that time began my connection with The Bell Telephone Company. But they had not gone into business as yet, and they did not need my active services. They only thought they would want me, and I said I was very anxious to get into a scientific field; I had a smattering of it and was studying and preparing myself. They said, "You will have to wait." The year went along until the summer of 1878—when they told me: "Now, we would like to have you come with us in September." Before that happened, I will say, that I was taken sick and was in the hospital, but after I got out of the hospital I went to the office of The Bell Telephone Company in New York. Now, you must not imagine The Bell Telephone Company as you know it to-day. They had half a loft at 66 and 68 Reade Street, New York. That was their headquarters, and the personnel was Mr. Vail, Mr. Watson and Mr. Devonshire, who is still with the American Bell Telephone Company as General Manager and Assistant Comptroller of The A. T. & T. Company, and my humble self. That was the staff of The Bell Telephone Company in the latter part of 1878, but during the summer Mr. Francis Blake, Jr., had joined them. Mr. Blake was a scientific man, and was connected with the service here—the Geological Survey. He got to tinkering with transmitters and got onto the idea that the correct way to mount the two loose contact electrodes—that is, the carbon and the little bead, was to suspend them on two springs and let them lean against the diaphragm, and that became what was afterwards known as the Blake transmitter, and for a number of years the Blake trans-

mitter was considered the standard instrument. Mr. Blake had invented it, to be sure, but it was not in practical shape. Mr. Blake was taken sick before he finished it, and they asked me to come as soon as possible. I went from the hospital, and they said: "Mr. Berliner, you must finish that Blake transmitter for us; it is not entirely in shape. The thing is there, and works beautifully; the idea is correct, but it can't go on the market as it is. When we put it in adjustment at night, in the morning it is out of adjustment, and, of course, such a condition is out of the question." We could not make ten transmitters alike; they were all different. Each one had a separate adjustment, and the next morning they were out of adjustment. So on the 1st of February, 1879, we all went to Boston, and there the headquarters were established and remained ever since. My particular office was in the factory of Charles Williams, Jr., who was the first man who made the telephone, and at whose place Mr. Bell invented the telephone. You will remember Mr. Bell's telling you how in the factory he was experimenting with Mr. Watson. I went there and worked on the Blake transmitter.

Carbon Button Experiment

I soon found that the principal trouble with the Blake transmitter was in the carbon button. We cut up electric light carbons into buttons, and there was only the firm of Wallace & Sons, in Massachusetts somewhere, who made them. They were the only ones to be had. They made carbon pencils for the first time that could be used in a semi-commercial electric light.

Now, those carbon buttons were very soft, and the trouble was that the vibration of the metal bead would dig a hole into the carbon button and destroy the adjustment. So one day one of the firm came to see us, and I said: "Can't you make these carbon pencils hard?" He said: "Well, yes, we could make them harder, but they wouldn't be homogeneous, but would be full of little holes and all that, and that I suppose would not do at all." So I set to work. After thinking the matter over it occurred to me that if we would take some of those soft carbon buttons and send them to the gas works where they make gas in a retort, and put them in a cage and leave them there, that the carbon gas might condense itself on the surface of those soft carbon buttons and thus give us a coating of hard gas carbon. This could not be used in blocks, because it was too difficult to saw it; so I rigged up a cage, filled it with buttons and sent it down, and they sent it back the next day. When I opened the cage I was very much disappointed. The buttons had all shriveled up, were partly burned, and the idea seemed to be an utter failure. But I took a piece of emery paper and rubbed off the loose burned crust from one of the carbon buttons, and all at once I could not rub any more; it was so hard that I could not rub it and it took the highest kind of polish. I then thought there must be some way of doing it without burning the carbon pieces. I was told how the thing had been put in the retort, and became familiar with the place in the retort where the carbon gas condensed. The next day I sent another lot down, and they came back without being burned, and gave the most beautiful carbon buttons, which were used ever since, and after a few more minor improvements we had no trouble with the Blake transmitter. We could make two hundred a day, which was considered at that time a very large number, and we adjusted them, and they stayed there, working absolutely perfect.

That was my practical work in the development of what was known as the Blake transmitter—the Blake type of loose contacts suspended on two springs.

Very Early Trouble Shooting

I want to tell you a curious incident in connection with that Blake transmitter. I know those of you who have to do with the troubles in instruments will appreciate it. I went to Europe soon afterwards, and while I was away Mr. E. T. Gilliland, a well-known electrical engineer at that time, was put in charge of the Bell instruments. I remained in Europe four or five months, and when I came back, Mr. Devonshire called me and said: "Mr. Berliner, there is something wrong with these transmitters; they do not work as well as they use to."

I said: "Is that so? I will take a look at them."

I tried them, and found them rather poor. I studied for some time, and made experiments, but could not make it out until I thought that perhaps the process of the hardening of the carbon button, which I had adopted, was not scientific enough and might give rise to impurities in the carbon, and that, of course, the carbon would become a poor conductor. Sulphur, for instance, might get into it, and the process might be a failure after all. So, at my request, a professor of chemistry in the Massachusetts Institute of Technology was engaged to go through the whole process and find out if it was possible for any impurities to get into the carbons, and after three or four weeks the professor—I have forgotten his name—reported that there was no possibility, in the process that I had adopted, for any impurities to get in, and that there was nothing but pure carbon inside. Of course, that satisfied us that the trouble was not in the carbon, and yet we could not discover it, and still complaints were coming in from all over the country that the transmitters were no good. So finally Mr. Vail called me and said: "Mr. Berliner, you have got to do something; something is wrong somewhere."

It bothered me a great deal. Now, while I was away Mr. Gilliland had adopted a new lock—you remember in the old Blake transmitter there was a small box of black walnut, which had a sort of a Yale key, which is still in existence to-day wherever they can be shown—but before that they had an ordinary lock. One day I thought I would take that whole transmitter to pieces. I did so, and I had to loosen the diaphragm from the box and take it all to pieces. I took off even the diaphragm, and all at once I saw that Mr. Gilliland, in order to put his new lock in, had drilled a hole inside, in front of the sound chamber opposite the diaphragm, and when one spoke into the transmitter he spoke against the diaphragm. The full pressure of the air was not used, but part went out sideways into the box. I called my assistant and said: "Richards, have some of these transmitters made and have a piece of pasteboard glued over the hole and see what results from that." And the boxes were made ready and they sent up a batch of about twenty while I went to lunch. Hardly had I come back from lunch when all at once Richards came storming down to my office, saying: "We have got it."

I said: "What have you got?"

He said: "The whole trouble has been that lock. The transmitters were fine!"

So we removed that difficulty by making the casting a little different, and from that time on we had good transmitters. It shows you to what extent you may go in scientific investigation and then right before your nose you will find the difficulty, if you only take the trouble to investigate more thoroughly. It was ridiculous, really.

"Telephony" in Germany

About that time it became known in Europe that in the United States there was a speaking telephone. There was a scientist named Reis in Germany, who made the Reis telephone, which gave nothing but a buzzing sound by make and break of contact, and it was asserted that he had invented it years before. It was never proved to be a speech transmitter, and there were a good many scientific discussions as to whether there had been a speaking telephone before Mr. Bell's. I have (and I am sorry I did not bring it along) a Washington paper, printed in German, however, of the year 1877. There was in Germany a scientific man named Bernstein, who wrote on scientific subjects for the people, like Tyndall did in later days in England. And one day I saw an article in that German paper headed: "Scientific Lies." This was written by Professor Bernstein, who had discussed various claims in which somebody had been trying to show that we could do away with gravitation and other "fakes," and then he said: "Recently the news has come to us from America that a man named Bell has invented a speaking telephone. Concerning the transmission of sounds, that is old. Philip Reis, of Frankfurt, has done that some years ago. But," he continued, "when it comes to the transmission of speech, that is quite impossible. You might get sounds of melodies by uninterrupted currents, and you might get something analogous to speech or rhythm by it, or laughter or exclamation, but you cannot get speech, and German papers ought not to publish every American exaggeration that is dished up in the American press." Now when the telephone really came, when they found it was true, they dug out some writings, and they commenced to explain it on the theory, which they are great in finding—Germans are very deep thinkers, for when they commence to take hold of a subject they get to the bottom of it—and then they said (in a report made by the Postmaster General to the old Emperor): "Yes, Mr. Bell has invented a speaking telephone, but it remained for German scientists to give the true explanation of its workings." And by and by they came along and said: "Of course Reis has done that long ago," and later they erected to him a monument in Frankfurt with the inscription: "Philip Reis, the inventor of the telephone." First, it is not possible; next, we know more about it than the Americans; and finally that was invented by us long ago.

Lawsuits

You may have heard considerable about the lawsuits that The Bell Telephone Company had to fight with the Western Union Telegraph Company and others, especially the People's Telephone Company, which owned the claims of a man named Drawbaugh who asserted that he had invented the telephone before Bell. One day a very prominent lawyer asked me when I was in New York to come up to his office. Mr. Drawbaugh was an old tinker, bell-hanger, or something of that sort, in Pennsylvania in some obscure town, and this company called the People's Telephone Company had put him forward as the inventor of the telephone, fighting the Bell patents, and the case was in litigation for many years and cost a good deal of money. I went to the lawyer's office and he showed me a lot of drawings, and said: "I want you to look over these drawings; these are Mr. Drawbaugh's drawings." I looked them over and all at once I saw a Blake transmitter. There was the induction coil and the diaphragm and the bell, the box and the casting, the Blake transmitter springs and the carbon button. I said: "Do you mean to say that Mr. Drawbaugh invented this?"

"Yes, invented that in 1876."

Now 1876 was just the time that Mr. Bell had evolved the membrane telephone. I said: "Well, your man Drawbaugh is either the greatest genius that ever lived or he is the biggest liar." Later my transmitter patent was fought in the courts for many years, and even by the United States Government, using the assertions of the People's Telephone Company and others, and endeavoring to prove that my transmitter patent was no good, and among other things they said: "Yes, Mr. Berliner had a fine idea." (I had brought this principle of the Morse key instrument from which I evolved the transmitter, into my patent, and I based the transmitter on that experiment with the key; when you press down the key hard or soft), and they said: "Oh, well, that is a beautiful idea, but it is no good. Mr. Berliner has metal contacts and the Morse key has platinum. You cannot use platinum to transmit speech; it takes carbon, and we claim Mr. Edison was ahead of Mr. Berliner in using carbon"—meaning Mr. Edison's lampblack buttons. So they said: "His invention is not complete, and unless you can prove that you can transmit speech that way commercially you cannot claim that your patent is a complete invention." But I had prepared for that very thing, and we said we would furnish proofs and a meeting was arranged in the Bell Telephone office in Boston between the Government attorneys and the Government experts, several professors and experts on our side, and when the time came I took an ordinary learners' key, a five-dollar instrument, and I took the heavy spring out and substituted a light spring, a relay spring, and I adjusted that relay spring carefully until I had a very loose contact (I had made it before and therefore was prepared), and I put my watch on the base board of the key instrument, and when I heard the "tick, tick," I said to the Government's attorney, "Go ahead." He said: "What do you mean?" I said: "Talk to your man at the other end downstairs." He said: "Do you mean I shall talk to that Morse key?" I said, "Yes." He said, "Hello," and he carried on a conversation with the loose contact of the Morse key without any diaphragm or any carbon; and he then turned around and exclaimed: "It does seem incredible." That knocked them out on the proposition that I did not have a completed invention when I filed my patent.

Principle of Loose Contact Transmitter

Now something about the theory of the scientific principle of a loose contact transmitter. It is not so easy to explain. You have a loose contact and you press it. Now what happens there? You do not press it hard enough to make any mark and yet you can speak to a loose contact, or speak in a Blake transmitter for years, and when you examine it there is no mark. What then is happening at that loose contact? The theories about this have been widely different, but my original one, which I arrived at very early, has finally been accepted, and that is this: I know that there are a great many of you here who have not studied physics, and yet it is now so simple a proposition that I think you will all understand it. Air is a conductor of electricity as well as a wire, the only difference being that a wire conducts electricity better; it has less resistance than the air. If I had a current, a spark, from a friction machine or from an induction coil, I could send it over quite a distance through the air. That shows that the air conducts electricity as well as the wire, but it takes a higher voltage to bridge the air, and when you have a voltage like a flash of lightning you can bridge over miles of air.

The Solid Back Transmitter

(Continued)

And you can make the air a conductor, as for example, in the wireless telegraph, over thousands of miles, although the wireless telegraph works somewhat differently, there is the ether which is a conductor, but air is undoubtedly in it. Now when you have a loose contact between, for instance, the metal and carbon or between two metals or platinum, or anything, there is an intervening layer of air that can be shown by proper instruments, and when the current passes over that contact it has to pass over a very thin layer of air, and when you vibrate the diaphragm you increase or decrease the thickness of that layer of air, and that is what gives you these considerable variations of resistance which are necessary for the production of a speech current.

I forgot to mention to you that while the Bell telephone was employed independent of any other transmitter, that you could use it both for speaking and for listening as it used the magneto current, and after the discovery of the microphone you could use a loose contact both for transmitting and for receiving. It was found, however, after a short time that the best results were obtained in using Mr. Bell's receiver and the loose contact transmitter so the two completed each other, taking part of one principle and part of the other, and ever since such a pair has been used. Other transmitters have been invented experimentally on scientific principles, for instance liquid transmitters, gas transmitters and others, but the effective transmitter remains the same as it was thirty-three years ago—the loose contact.

There are a great many other interesting episodes in the early telephone history, but this really completes my connection with it.

Flying Machines

Your Chairman has asked me in his letter, since I wound up my classification of epoch-making inventions with the flying machine, whether I would say something about that, and I will give you just a very brief talk on that. There are at present three kinds of flying machines, two completed and one uncompleted. The first is the dirigible balloon. It is a gas bag, and you put a propeller to that and send it, unless the wind is too strong, anywhere. The next is the aeroplane, invented by the Wrights, although the general idea is very old. You will find in the old "Encyclopedia Britannica" of thirty years ago the picture under "flight" of an aeroplane almost identical with that of the Wrights. Of course, in those years they did not have the light motors; they did not have anything but steam motors, which were very heavy, and it was not until the development of the gasoline motor that flying became possible. But the general idea is so old that the Wrights, who got out a temporary injunction against the other users of the aeroplane, having been the first persons to fly successfully, was thrown out of court because there were so many other ideas shown to be old that theirs was really not such a novel invention. They may eventually receive a monopoly, but it is very much doubted but that it would be based on very or comparatively slight inventions which they added to old devices, but they were the first ones to fly successfully and deserve all credit for that.

The Helicopter

Now there is a third idea, and that is one on which I have been at work for some time, which

is known as the Helicopter. That is also very old, as an idea, but has never been successfully brought to perfection. It is nothing really but a ceiling fan on a very large scale run by a gasoline motor of considerable power. You have seen these little toys known as Japanese tops that fly up in the air. That is the idea—just a horizontal screw that by revolving lifts itself up. A great many have tried it and once in a while we hear of one who claims to have succeeded in lifting somebody up, but no real, substantial demonstration has ever been given. I have been at work on it for some time and last summer we succeeded in lifting the machine, the motor and two men from the ground, but the machine was anchored and we did not attempt free flight. It is possible undoubtedly to do it and we are at work on another construction, and I hope before very long to be able to show that it can be done successfully. The difficulties are much greater than in the aeroplane because you have to lift yourself up bodily. Now you may say, suppose you do that, how can you fly forward? Now that is very simple, much simpler than appears on first consideration, because all you have to do is to tip your screws slightly forward and you immedi-

ately push forward in that direction. We have done it, not in a complete flight, but with a small instrument run by a little spring, by just tipping it and it will fly across the room until it stops. If such a machine can be made to lift an operator or two, all the operator has to do is to step forward and tip the machine by his own weight and it will move in the direction of the dip. That is the principle of the helicopter. We are working on it. I do not know whether we will succeed. It looks very promising just now, and maybe soon we will have it perfected, and I shall be very glad to show you a completed one, and after a while I may be able to add another little leaf to the book of my experiences.

I thank you very much.

[NOTE: The so-called "long distance" transmitter, now in general use, was first evolved by Hunnings in England. The loose hard carbon granules therein form multiple loose contacts, and the idea of using several contacts being affected by the voice at the same time was mentioned by Mr. Berliner in his earliest patent paper. So was also the idea of having the primary of the coil on the line, mentioned in his earliest publication describing the use of the induction coil, in 1877.]

Saving at the Spigot and Wasting at the Bung-hole

Failure to recognize the value of Bell Telephone Service means a saving of pennies but a mighty waste of dollars.

Use the Bell

Name of Local Company
Name of District Manager or Agent
Address

Buying Over the Telephone

A Metropolitan Newspaper says that—
A few days ago a prominent business man called the agency of a well-known automobile, and purchased a 60 h. p. car by telephone. The transaction was closed so quickly that it almost took the agency manager's breath away. If an automobile, why not your product?

Use the Bell

Name of Local Company
Name of District Manager or Agent
Address

The Telephone In Spring Moving

A large real estate man says that most of his inquiries reach him by

Bell Telephone

When the actual moving begins the telephone gives real help.

Use the Bell

Name of Local Company
Name of District Manager or Agent
Address

Mr. Business Man:

The most successful merchants today are the heaviest Bell Telephone users. Present-day competition makes necessary a means of instant communication that is afforded only by our local and long distance service.

Use the Bell

Name of Local Company
Name of Dist. Mgr. or Agent
Address

"Ready for Fitting Tomorrow Noon."

Most of the trouble of having dresses made is a ready-made certainty of pleasure.

Bell Telephone

To dressmaker it is a ready-made certainty of pleasure.

Part of the present series of newspaper advertising now being run in the smaller cities throughout the territory. The actor is appearing in the newspapers reaching

Do You Travel?
Good accommodations are easily obtained by
Bell Telephone
Call hotel, railroad and steamship offices and be assured of every comfort. The Bell Service reaches everywhere.
Name of Local Company
Name of District Manager or Agent
Address

Prepare!
Next month you may regret that you neglected to order a telephone to-day.
Use the Bell
Name of Local Co.
Name of Dist. Mgr. or Agt.
Address

Weather-Proof Shopping
When stormy weather is added to other discomforts, shopping is a sore trial to nerves, temper and health. For convenience and comfort's sake
Shop by Bell Telephone
Name of Local Company
Name of Dist. Mgr. or Agent
Address

A Builder's Implement
Building operations are facilitated and quickened by the use of the
Bell Telephone
Boss and workman alike find it indispensable to
Use the Bell
Name of Local Company
Name of District Manager or Agent
Address

ries of the companies. A new series will begin April 1. A series of rural advertisements similar in character to the smaller towns and rural districts

Organization Changes

H. E. Prevost, Local Manager at Huntingdon, has been appointed to the same position at Altoona. H. C. Mitinger, formerly a salesman at Altoona, has been appointed to succeed Mr. Prevost at Huntingdon.

LeRoy Gibson has been appointed Cable Foreman at Williamsport, to succeed W. H. Gardner, who has been transferred to Harrisburg.

R. J. Brent, formerly in the office of the Supervisor of Supplies, Philadelphia, has been transferred to the Plant Department, Pittsburg.

H. L. Levvy has been appointed Local Manager of the New Castle Sub-District.

L. H. Knott has been appointed Local Manager of the Erie Sub-District.

R. C. Mason, formerly Chief Clerk, Philadelphia Division Manager's office, has been appointed Special Agent, Commercial Manager's office.

T. T. Cook, formerly in the office of the Sub-License Agent, Harrisburg Division, has been transferred to the Publicity Manager's office, Philadelphia.

Traffic Department Organization

In accordance with General Instructions No. 1, Series of 1911, that portion of the Atlantic Coast Division within the States of Maryland and Virginia has been transferred to the Baltimore Division.

The City of Philadelphia has been combined into one Traffic Division.

The following is the Organization for the several Traffic Divisions:

Philadelphia Division

Traffic Superintendent, W. W. Young.

Traffic Supervisor, H. D. Uhl, Market, Lombard, Kensington, Frankford, Tacony, Torresdale, Fox Chase and Bustleton.

Traffic Supervisor, H. W. Dean, Filbert, Walnut and Dickinson.

Traffic Supervisor, A. M. Kite, Spruce, Locust and Toll.

Traffic Supervisor, T. Wistar, Jr., Germantown, Chestnut Hill, Oak Lane and Manayunk.

Traffic Supervisor, C. G. Tatnall, Preston, Belmont and Woodland.

Traffic Supervisor, H. W. Peacock, Jr., Poplar, Diamond and Tioga.

Traffic Supervisor, J. Gibson, Pay Stations, Private Branch Exchanges and Service Inspection.

Traffic Engineer, J. S. Beckman.
Chief Operator, Miss M. P. Smith, Operators' School.

Station Record Clerk, J. H. Schaefer, Station Records.

Directory Clerk, Miss Rouse.

Atlantic Coast and Eastern Pennsylvania Division

Traffic Superintendent, A. de B. Robins.

Traffic Supervisor, C. Zander, New Jersey District.

Traffic Supervisor, A. D. Merrick, Eastern Pa. Traffic District.

Traffic Supervisor, A. C. Musselman, Delaware Traffic District.

Traffic Engineer, J. S. Beckman.

Chief Operator, Miss Doyle, Operators' School.

Chief Clerk, Miss Kimmey.

Directory Clerk, Miss Hilt.

Baltimore and Washington Division

Traffic Superintendent, E. Corrigan.

Traffic Supervisor, R. E. L. George, Baltimore District (Baltimore City Only).

Traffic Supervisor, W. E. McMahon, Washington District (Washington and Suburbs).

Traffic Supervisor, H. P. Shaffer, Elsewhere District Remainder of C. & P. Tel. Co. Territory together with the portions of Maryland and Virginia of the Diamond State Tel. Co.

Traffic Engineer, J. A. Froehlinger.

Chief Clerk, L. B. Taaffe (Also in charge of Service Inspection).

Harrisburg Division

Traffic Superintendent, S. E. Gill.

Traffic Supervisor, J. T. Harris, Harrisburg District including Lancaster, Harrisburg, York, Altoona and Williamsport sub-districts.

Traffic Supervisor, C. P. Williams, Reading District including Lebanon, Reading, Pottsville and Shamokin sub-districts.

Traffic Supervisor, C. H. Bucknor, Jr., Allentown District including Allentown, Bethlehem and Easton sub-districts.

Traffic Supervisor, S. H. Urian, Scranton District including Scranton, Wilkes-Barre, Berwick and Hazleton sub-districts.

Traffic Engineer, T. R. Gleim.

Chief Clerk, Miss E. R. Lavery.

Pittsburg Division

Traffic Superintendent, F. T. Ewing.

Traffic Supervisor, J. M. Griffith, Pittsburg District.

Traffic Supervisor, H. W. Wood, Wheeling District including Wheeling, Steubenville, Parkersburg, Marietta, E. Liverpool, Uhricksville and Titusville sub-districts.

Traffic Supervisor, C. A. Wilder, Butler District including Butler, Oil City, Du Bois and New Kensington sub-districts.

Traffic Supervisor, G. A. Geddes, Uniontown District including Uniontown, Charleroi, Clarksburg, Washington, Johnstown and Greensburg sub-districts.

Traffic Supervisor, W. R. Page, New Castle District including New Castle, Sharon, Salem and Niles sub-districts.

Traffic Engineer, C. P. Galleher.

Chief Clerk, E. S. Coates.

Directory Clerk, F. F. Ziegler.

Traffic Engineering Division

Traffic Engineer, C. C. Brown.

Traffic Engineer, J. S. Beckman, Philadelphia, Atlantic Coast and Eastern Pennsylvania.

Traffic Engineer, T. R. Gleim, Harrisburg.

Traffic Engineer, C. P. Galleher, Pittsburg.

Traffic Engineer, J. A. Froehlinger, Baltimore and Washington.



Bell Telephone Special
Taking Water en route, with
Emergency Force from Altoona.

PHILIPSBURG, PA., FIRE
December 30, 1910.
See Altoona District News.

Showing Approximate Location
of Where the Fire Started. Former
Central Office in the Distance.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. On January 6, 1911, Hess Brothers' department store, Allentown, Pa., signed for a leased line between their private branch exchange and the Bethlehem central office. The work was O.K.'d at 7 P. M. January 7. Since this line has been installed, the above-named department store is compelled to make two daily deliveries to the Bethlehems instead of one, as heretofore. Full pages in all the Bethlehem and Allentown newspapers were used to advertise this modern method of shopping.

A hotel keeper in the rural district refused to install our service, stating that he seldom used it and that his neighbors had given him the privilege of using their station. The neighbors, tiring of this imposition, agreed to call him to the telephone during his meal hours, thinking that by this arrangement he would soon feel the need of individual service—and it worked. The hotel man now has his own Bell telephone service.

A grocery store in Allentown changed hands and the new proprietor immediately superseded the former four-party service to direct line. The salesman requested him to mail our postal card (Form 1156) to Bell subscribers that did not deal at his store. Twenty-five post cards were mailed and two new customers were secured, one of whom placed an order amounting to \$7.30 and the other \$3.25. He at once requested an additional supply of 300 post cards and signed an application for four spaces, three issues of margin advertisement to be inserted in our next directory.

Altoona District. The following new rural lines and new and additional rural line stations were installed in this District during 1910:

Central Office	No. of Companies	Stations
Altoona	1	8
Alexandria	1	8
Hollidaysburg	6	40
Huntingdon	1	52
Lewistown	1	424
Mahaffey	4	41
Philipsburg	1	4
Tyrone	1	121
	15	698

The Mayor of Altoona in his annual message to the City Councils very highly compliments our Company:

"The public will doubtless be pleased to learn of the commendable activities of the Bell Telephone Company in reducing the number of its overhead wires, which are always a menace to the public, and putting them underground. I am sorry that the other companies have not emulated this good example. The other companies have been negligent, and in the spring I will be obliged to cause the arrest of their officials for failing to comply with the conduit ordinance."

As mentioned in the last issue of THE TELEPHONE NEWS, the Company's Philipsburg, Pa.,

exchange was totally destroyed by fire on the morning of Friday, December 30. The daily papers of the State contained notices of this fire, but, with one or two exceptions, scarcely anything was mentioned concerning the rather remarkable record made by the Bell Telephone Company, first, in establishing temporary toll and long distance connections and, second, the placing of the local subscribers on a satisfactory working basis.

The fire started about 5.30 A. M. on the first floor of the building partially occupied by us, and three hours later the central office was in ruins. We had in service at this point a 4-position No. 9 common battery board, and immediate steps were taken to provide something which would give our Philipsburg subscribers temporary service. A temporary central office was located in the building belonging to the John Barnes estate, situated on the northwest corner of Front and Pine streets. The toll service, however, received first attention. Several magneto telephones were placed in a room near the site of the former central office and connected with the trunk lines leading in and out of Philipsburg. This was supplemented by a messenger system, with which we were enabled to reach our Philipsburg subscribers when toll or long distance calls were received for them. Within a half hour after notice of the fire had reached the Altoona Plant Supervisor, a temporary switchboard had been ordered from Philadelphia and preparations were being made for shipment; at the same time men and material were dispatched to Philipsburg from Altoona. A little later, when the extent of the fire became known, it was deemed necessary to send a larger supply of material and a greater number of men, and arrangements were made with the Pennsylvania Railroad Company for a special train, consisting of a baggage car and one coach. This was loaded with cable and other material, and with additional employees left Altoona at 11.30 A. M. and arrived at Philipsburg at 1.00 P. M. It was only through the hearty coöperation of the Pennsylvania Railroad officials that this prompt action was possible. Immediately on the arrival of the special train work was started on the placing of new cable where old cable had been put out of service, and this work was continued without pause until completed. Two positions of a No. 4 common battery board arrived from Philadelphia, via express, at 8.00 o'clock Friday night, and the work of installation started at the same time and continued throughout the night.

At 11.00 o'clock Saturday morning some of our Philipsburg subscribers were connected for local service, just thirty hours after the fire had severed all connections. The work was rushed all day Saturday and each hour saw additional subscribers receiving service until, at a late hour

Saturday night, the entire number of our Philipsburg subscribers were receiving practically the same service as before the fire.

Taking into consideration the fact that the work accomplished in thirty hours usually requires at least a month, it is obvious that great credit is due the Plant and Engineering Departments for their initiative, ability and untiring energy in handling the emergency in such record-making time. Everyone worked at full speed all the time, both indoors and out, and no thought was given to personal comfort or sleep until the work at hand was entirely completed.

Reading District. Britton's department store is another large retail house that has arranged for free toll service for its customers. The area covered includes practically all towns and villages within a radius of twenty miles of Reading.

Scranton District. A peculiar case of trouble developed near Honesdale. One of our subscribers reported that each time she used the telephone she was repeatedly cut off. She also informed us that her husband never experienced this trouble. Our Plant representative called a number of times, but without success, as the line always tested O. K. On his last visit he asked the woman to show him how she used the telephone. While she was talking she experienced the same trouble. He then discovered that the trouble was due to the way in which she held the receiver. She wore two rings which came in contact with the binding posts while she held the receiver. This caused the telephone to cut out.

Wilkes-Barre District. The success of the telephone train dispatching circuits recently installed on the Lehigh Valley Railroad has led to further extensions of this new method of handling train movements. A telephone line has just been cut into service between Packerton and Bernice, Pennsylvania, the dispatcher being located at Wilkes-Barre. The telegraph will soon be supplanted also between Wilkes-Barre and Sayre, adding about 90 miles more.

Williamsport District. The West Branch Bell Telephone Company opened an exchange at Watertown on January 2 with 20 subscribers. This company is now operating three exchanges, one each at Muncy, Montgomery and Watertown. Since May 16, 1910, this company has increased its subscribers' list from 37 stations, formerly operated by the Bell Company, to 202 stations, making a total of 165 new stations since the organization.

The "Don't Walk—Talk" blotters issued by the A. T. and T. Co. as an advertisement were put to a novel use by an enterprising hotel proprietor of Coudersport, Pa. The blank side had printed on it the full dinner menu of the establishment. Whether the idea was to advertise the A. T. and T. Co., or merely to save the cost of menu paper, is not stated.

York District. In April, 1906, the Silver Run Telephone Company of Silver Run, Md., was organized and chartered by the State of Maryland. A traffic contract was entered into with the American Union Company and exchange connections were made with their system at Taneytown, Md., and Littlestown, Pa. On December 31, 1910, it severed connection with the Opposition Company, in the meantime installing a Western Electric Company switchboard, and on January 1 was connected by trunk lines with the Taneytown, Md., exchange of The Chesapeake & Potomac Telephone Company and the Littlestown exchange of The Bell Telephone Company of Pennsylvania. Forty-six subscribers on its service January 1 were furnished Bell connection by this change. The Directors of the Silver Run Company are progressive and determined to enlarge that Company's field of operation.

Washington Division

R. G. HUNT, Division Correspondent

The Washington Commercial Department has derived considerable benefit from the suggestion books. These books were distributed broadcast throughout the various departments. During the months of November and December a total of 24 new applications for telephones and one advertising application were obtained on suggestions made by employees. In addition, five valuable suggestions for improvement along various lines of the work were made and accepted. Altogether the plan has been found to be a good one and the interest manifested by the employees of other departments in the canvass for new business is most gratifying to the Commercial Department. The Plant Department leads in the number of new stations thus signed for, twelve contracts being turned in on suggestions of Plant employees.

An application has been obtained for a private branch exchange from the Iroquois Apartment House, the system to consist of 2 trunk lines and 43 stations.

The Westchester Apartment House has recently signed for switchboard service with 8 stations.

An application has been signed by Mrs. Stephen B. Elkins, widow of the late Senator, for a residence private branch exchange with 8 stations.

Recently one of our automatic public telephone subscribers, a druggist, complained that the bell box on his telephone had been torn from the wall. In explaining how this happened, the druggist stated that a long, rakish-looking man had asked to make a telephone call. The druggist showed him the telephone and then turned to attend to some other matter. On hearing a peculiar noise he turned to find the user with the bell box in his hands. It appeared that he was unfamiliar with the use of the telephone and imagined that, in order to use it, it was necessary to open the bell box. He had tried to do this with a pin, failing which he had resorted to main strength.

The following note of appreciation was received from a prominent taxicab company of Washington:

Let me express to you the appreciation we feel for your generous efforts to provide this company with modern and satisfactory telephone equipment in our new garage.

We have just passed through the trying ordeal of moving our service and at the same time continuing uninterrupted the taxicab service, which is largely dependent upon the use of the telephone to make it work smoothly.

That the change was made with almost no interruption was largely due to the attention of your various departments to our needs.

We are grateful for the lamp board you have installed, and every one of our several operators has expressed her appreciation of the facilities it affords in handling the service.

It will be a constant reminder of your thoughtfulness.

Information operators at the North Central Office continue to receive a rather varied line of queries. A few are given below:

Is there a hardware store on L Street?

Can you give me any information about the band that played around the Capitol at two o'clock this morning?

Can you tell me if Mrs. Sherman, wife of the Vice-President, is keeping up her "days at home?"

What are the "free" days at the Corcoran Art Gallery?

At what time did the sun rise this morning?

What time must I get up to see the comet?

What days is the White House open for visitors?

What express company has an office at Earle, Iowa?

Where does the Marine Band play this afternoon?

Can you tell me of any one who dyes sailor hats?

Can a subscriber who has unlimited service talk to Pittsburg, Pa., without extra charge?

What is the meaning of "barouche?"

Can you tell me the name of the King of England?

How many stores have Taggart & Co. in New York City?

How do you spell "Magnolia?"

Where is Everite Butterfield stopping?

Is there a man on "Q" Street who cleans windows?

Can you tell me of a good place half way between Washington and Baltimore to spend the summer?

What train shall I take to go to Kansas?

At what time does the steamer from Germany arrive in Baltimore to-day?

What is the distance between Washington and New York?

Can you talk to Georgetown, D. C., over the telephone?

What is the proper spelling for "pajamas?"

Where can I purchase a turkey for to-morrow?

Is it raining?

Use of Chestnut Poles**AMERICAN TELEPHONE AND TELEGRAPH COMPANY**

15 Dey Street

NEW YORK, Dec. 2, 1910.

MR. N. HAYWARD, Chief Engineer,
The Bell Telephone Company of Pennsylvania,
Philadelphia, Pa.

DEAR SIR: We have recently been considering the advisability of using for poles chestnut trees killed by the bark disease. This disease is believed to have originated on Long Island and has now spread over considerable areas in New Jersey, New York State and Connecticut. Authenticated centers of infection have been discovered as far to the north and east as the northern part of Rhode Island, and as far south as the southern part of Virginia. A number of centers of infection are located in Pennsylvania, Maryland and Delaware, and in the other States previously mentioned at points distant from the completely infected region which is centered about New York City.

The chestnut bark disease is due to a fungus, the spores of which generally enter the tree through wounds on the branches or trunk. From the point of infection the fungus grows in all directions through the cambium and the inner bark until the growth meets on the opposite side of the trunk or limb which is thereby girdled. It has sometimes been found that a few of the outer annual rings of the wood are attacked, but generally the wood is not affected. The injurious work of the fungus is usually completed during the first summer after it obtains a location on the tree, but injury is frequently not apparent until the next spring, when the new leaves put out are stunted and soon wither. The injury to the trunk or the branch to which the fungus has become attached is very much the same in character as if the tree had been girdled—that is, the rise of the sap to the upper parts of the trunk or branch is affected and the death of the trunk or limb results. As the fungus does not work in the wood to any appreciable extent and ceases its activity when the tree is dead, the wood is not damaged as a result of the disease. Provided the timber is used within a reasonable time—say within two or three years after the tree has been killed by the disease—there is no reason why its serviceability for poles is in any way impaired. It should, of course, be understood that dead standing trees are undergoing a certain amount of seasoning, and that generally it is not desirable to allow poles to season for more than two or three years. There is, of course, one feature to which careful attention must be given in case trees killed by the bark disease are used for poles. While the bark disease does not injure the timber, the dead tree is more susceptible to injury from insects and from the usual decay-producing fungi than the live tree. On this account poles cut from

Telephone Societies**The Telephone Society of Baltimore**

5 Light Street.

February 1.

The History of a Contract

*Speakers:*F. Lawton, Jr.,
Contract Manager.*Subjects:*"Getting the
Contract."W. B. Beals,
Construction Engineer. Outside Construction."J. F. Moulton,
C. O. Engineer. "Plans for the
Central Office."J. T. Graff,
Plant Supervisor, "The Work."**The Telephone Society of Pittsburg**

Carnegie Auditorium, North Side.

February 17.

Speaker: Herbert N. Casson.*Subject:* "The Wonders of the Telephone
Business."**The Philadelphia Telephone Society**

1420 Chestnut Street.

February 14.

Speaker: S. E. Gill, Traffic Superintendent,
Harrisburg Division.*Subject:* Traffic Engineering.**The Spare Pair Society**

1414 Arch Street, Philadelphia.

February 15.

Speaker: C. A. Frost, Chief Clerk, Plant Department.*Subject:* Motorcycles.**Chester Telephone Society**

20 East Fifth Street.

February 9.

Speaker: G. D. Heald, Plant Engineer, Eastern Division.*Subject:* "Specifications No. 3290."**Reading Plant School**

Church Street.

February 7.

Subject: "Specifications for Installation of
Private Branch Exchanges."*Reader:* H. W. Springer.Comments by Messrs. Hasskarl, Fegley,
Strickler, Adamson, Kramer, Lenhart, Wagner
and Lewis.**Atlantic Telephone Society**

14 South New York Ave., Atlantic City.

February 21.

Speaker: C. B. Smith, District Manager.*Subject:* To be announced.

trees killed by the bark disease should always be inspected to make sure that no impairment has come from decay or from the work of insects while they have been standing in the forest after being killed by the bark disease fungus.

I trust that the information given above will enable you to decide any questions relating to the use of chestnut trees killed by the bark disease which may come before you, but in case you desire any additional information I shall be glad to furnish it.

Yours truly,

(Signed) B. GHERARDI,
Engineer of Plant.

Baltimore Division**J. C. STACK, Division Correspondent**

Baltimore District. Harry A. Foreman, trouble man at Walbrook, has been elected President of the Maryland Motor Cycle Club. A daily paper in speaking of Mr. Foreman's election says: "The new President is well known to the residents of Walbrook as the record-breaking trouble shooter of The C. and P. Telephone Co."

A merchant, about to open a small grocery, had before him the problem of choosing between electric lights and telephone service, as he felt he could afford but one of the two to begin business. Having decided to have electric lights, he called at the office of the electric company and made arrangements for an agent to call for his order the following afternoon. On his way home from the electric company office he stopped at his store to leave some purchases he had made. Opening the door he noticed among his mail an article on "Selling by Telephone."

That evening he consulted the little work and, after carefully reading each word, he decided he had made a mistake. The following morning, in response to a call by telephone, our salesman called and obtained a direct message rate application.

A letter was received from Mr. Charles C. Steiff, of the Steiff Company, silversmiths, thanking us for prompt attention given an emergency move order. The request was received on January 9 at 11 A. M. and was O. K.'d at 12.30 the same afternoon.

Deitrich Bros., steel workers, have signed an application for a private branch exchange No. 1 equipment, 3 trunks and 16 stations. W. M. McIntire was the salesman.

The Plant Department at Frederick has been taking down the old plant of the Frederick County Telephone Company, which was purchased about a year ago. The poles and cables of this former opposition company were directly in front of the new Central National Bank Building, and were considered very disfiguring.

A Baltimore paper contains a column headed "The Woman's Noontime Club," devoted to various discussions of interest to feminine readers. In a recent issue of the daily the telephone was the subject for the day. A column or more was devoted to the matter in a characteristic, conversational tone.

Stack

Annapolis District. A daily newspaper states that the latest addition to the Hotel Maryland is a long distance telephone system. This refers to our recent installation.

Clemson

Cumberland District. A few days ago the District Manager at Cumberland received a call at his house at about 7 P. M. from a man who was considering telephone service. He made an appointment to see the man at once. Upon talking with the prospective subscriber he learned that an application for Opposition service had already been signed, but as that Company had been rather independent about installing the service, he did not wish to use it provided he could get our service very soon. The application was signed and the Wire Chief was called that night, with the result that at 9.30 the next morning the telephone was in and O. K.'d.

Lately the District Manager was called by a prominent banker in town with a request to see him the next day. On calling an application was signed for direct line service in this man's residence, and upon the request of the new subscriber the telephone was installed the same day and O. K.'d.

Dodge

Hagerstown District. A P. B. X. equipment with

8 stations superseded 8 "Plan A" stations for the Security Cement and Lime Company, giving service to all departments, at Berkeley, W. Va.

The value of telephone service was appreciated by a rural non-subscriber after walking 1½ miles through a snow storm to secure the service of a physician and save a life. An application was signed and station was installed the day following.

At midnight the efficiency of Bell telephone service was appreciated by an Opposition subscriber who received no answer to his telephone. He used the Bell from a station nearly 100 yards away, to summon the Fire Department, and saved valuable property.

Plankinton

BELL TELEPHONE BOOTHS

A new decalcomania sign is here reproduced for use on drug and other store windows, but not for use on the booths themselves. [For use on booths the standard decalcomania sign is to be used as described in THE TELEPHONE NEWS of January 15, 1910.]

The new decalcomania sign—to be known by the code letter "G"—is now carried in stock by the Western Electric Company awaiting requisitions from the Plant Department.

It is to be used only in connection with equipment on the standard public telephone form of contract and operated by our Company employees or agents.

Atlantic Coast Division**J. R. ANDERSON, Division Correspondent**

Bridgeton Sub-District. A farmer calling at the local Commercial Office asked if he could have telephone service on a farm located in an isolated part of the territory. When told it would be too expensive to build a line to the place for only one subscriber, he said: "The landlord will have to look for another tenant, as I will not live on a farm without telephone service."

On Sunday night, January 8, at 8 P. M., the Mayor of Penn's Grove called the Local Manager at his home, in Bridgeton, N. J., stating that an epidemic of small-pox had broken out in Penn's Grove, N. J. He also stated that they were going to start, in the morning, to build an Emergency Hospital, and he wanted to know how quickly they could get telephone connections. The Manager got in touch with the Plant Chief, who ran the line the next morning and had the telephone ready for installation before the building was completed.

The Mayor and the citizens of Penn's Grove were very grateful for the quick installation.

Poles have been erected, wire strung and instruments ready to be connected on the following rural lines:

Company.	Stations.	Central Office.
Monroeville	13	Elmer
Maple Grove	10	Elmer
Bacon's Neck	8	Bridgeton
Sheppards Mills	9	Bridgeton

Lore

Camden District. A resident of Moorestown applied for telephone service, stating that a member of his family was dangerously ill. A record-breaking installation was made—Order taken 9.30 A. M., O.K'd. 10.12 A. M., time 42 minutes, work done by two men. Subscriber never had telephone service.

The Haddon Heights cut-over to Haddonfield central office was made at 9.11 P. M. January 5; 123 lines and 198 subscribers—time 2 seconds. No trouble occurred and the change was made with perfect satisfaction.

The Berlin central office has been equipped with a new 80-line switchboard.

An additional section of switchboard at Collingswood was put in operation recently. While the former equipment accommodated 278 lines and 511 subscribers, the new equipment will take care of 440 lines.

The supervising salesman at Camden obtained two applications in one day for P. B. X. service. 1) The First National Bank, with 2 trunks and 6 stations; and, 2) John B. Kates, attorney-at-law, monitor switchboard and 4 stations.

Our underground system has been the means of removing overhead wires through the city of Gloucester. During the past two weeks we have taken down 100 miles of bare copper and 400 cross arms. These are all trunks serving southern New Jersey. The work is being continued, much to the satisfaction of the townspeople.

At a meeting of the Camden County Board of Agriculture, held at Blackwood, December 20, the subject—"Farm Telephone Service"—was discussed at length by several members.

The following are copies of certain late correspondence between the New York Shipbuilding Company and the Camden District Manager:

DISTRICT MANAGER,
DELAWARE & ATLANTIC T. & T. Co.,
Camden, N. J.

DEAR SIR: We beg that you will convey the thanks of the New York Shipbuilding Company to the management of the Woodbury Exchange, and through them to the Chief Operator, for her unceasing efforts and courteous treatment conferred the writer in locating some parties in Philadelphia the address of whom he did not know.

Woodbury is very fortunate in having such able management in the telephone exchange, and we think your company is to be congratulated upon having in its employ as courteous and obliging an operator as the Chief proved on Sunday evening last, and the writer feels that the operator concerned is certainly possessed with the qualities that make Chief Operators.

Yours very truly,

NEW YORK SHIPBUILDING COMPANY,
NEW YORK SHIPBUILDING CO.

GENTLEMEN:—Your favor of the 12th inst., in reference to the satisfactory telephone service rendered you by our Woodbury operator, received.

We are exceedingly pleased to know that our employees are rendering the public efficient and satisfactory service, and we wish to thank you for expressing your appreciation, and assure you the credit will be given the proper department and your thanks extended to the operator.

We trust our future relations will be as pleasant as they have been in the past.

Croxtan

Trenton District. One of our salesmen in this district recently persuaded a merchant to dispose of an Opposition private branch exchange of 8 stations and install in its place a Bell private branch exchange of 10 stations.

The Trenton District Office reports great progress in educating the merchants in the use of Toll coupon books. The firm of C. V. Hill & Co. has requested us to furnish 300 books: Kirby Bros.' Flour Mills, near Medford, N. J., 200 books, and Louis H. Stein, representing Armour's Chicago Dressed Beef, Trenton, N. J., 400.

Brown



Local Managers, Sub-License Men and Others Who Attended the Managers' Conference, Pittsburgh Division, 416-7th Avenue, Pittsburgh, January 11.

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Greensburg District. A traffic agreement has been closed between the Reitz Telephone Company and the Windber Telephone Company, a sub-licensee of the Bell. The Reitz Company has been an independent company, operating an exchange at Reitz, Somerset County, Pa., and serving about 150 subscribers. This company will also connect with the Economy Company at Hooverville, Pa., a sub-license company of our Company.

A No. 3 traffic agreement has been signed by W. W. Moore, an independent owner in Somerset County, operating at Lavansville, Pa., and serving over 75 subscribers.

Private branch exchange service has been installed for the Tavern and Hotel Elhalt at Greensburg. The equipment in each case consists of 26 stations, 2 trunks and a No. 101 switchboard.

Facilities are being provided from Jacksonville to Blacklick to serve 22 rural subscribers.

The Johnstown Local Manager recently received a written notice from a coal company to remove five stations. He promptly made a personal call at the coal company's offices and induced them to retain the five telephones that had been ordered out and also obtained an application for two additional telephones.

Hugus

Pittsburg District. On January 11, fifty-seven local managers and sub-license men in the employ of the C. D. & P. Tel. Co. came to Pittsburg for a conference. The conference was held in the Operators' School on the ninth floor of the Seventh Avenue Building. Sessions were held both morning and afternoon. The program consisted of talks by officials and employees of the Company. Luncheon was served in the Dutch Room of the Fort Pitt Hotel.

A man with a package of cardboard signs recently walked into a new apartment house in Pittsburg. One of Pittsburg's salesmen saw him and waited until one of the signs had been placed in a downstairs window. The salesman read the sign and hurried to a real estate office. It happened that he knew one of the employees of that office.

"Whenever anybody signs up for one of those

apartments will you let me know?" asked the salesman.

The real estate employee agreed to do this.

Since that time every room in the apartment house has been rented. The salesman has received ten tips from the real estate employee. Eight applications for Bell telephone service have been signed for that location by the salesman who stopped to watch the man with the signs.

Rural Notes—Pittsburg Division. During the past year 132 rural line contracts were signed in the Pittsburg Division and the total number of rural stations added to Bell lines in that division was 2,729. Contracts were signed with 148 connecting companies, with a total of 29,313 stations. The toll business originated by these companies was unusually satisfactory.

Recently signed rural companies operating in the Pittsburg Division territory are given here:

District.	Location.	Company.	Stations.
Butler	Eldred, Pa.	Indian Creek	8
Butler	Eldred, Pa.	Haymaker	9

The Improved Home Telephone Company, which operates exchanges at Strasburg, Bolivar and Dundee, in Ohio, has just connected with our Company's lines at Canal Dover, O., and New Philadelphia, O. This company operates 281 stations.

Uniontown District. A new phantom circuit has been added between Fairmont and Clarksburg.

A transmission test has been added to the toll test board at Clarksburg.

Cahoon

Wheeling District. After extensive alterations and repairs to the Wheeling office the various departments are back in the Telephone Building on Chaplaine Street.

The Sub-district Wire Chief's office, the terminal rooms, the listing board and the storeroom occupy the first floor. The Commercial offices are on the second floor, and the Traffic Department is on the third floor.

Manager Bills, of the Wheeling sub-district, has obtained a private branch exchange application from the Gee Electrical Company, of Wheeling.

Healey

Stationery Notes

No. 3 Bell water-marked paper, white, with large seal, is to be used exclusively for inter-department correspondence.

The E. Faber No. 252 flexible hard rubber ruler has been adopted as standard.

Philadelphia Division

R. C. MASON, Division Correspondent

Down Town District. An applicant for a position came to the question, "Height—feet— inches?" Without hesitation he filled in the space between "feet" and "inches" with the following startling information, "9¾ shoe."

Members of the Equal Suffrage League, with headquarters in the Hale Building, have been making and selling candy to raise money with which to pay for telephone service. The amount needed is \$30.00, and as they have been successful in securing this amount, Mr. Breen, of the Down Town District Office, succeeded in having them sign an application for message rate service with coin box at \$30.00 per annum.

While attending a convention at Harrisburg on the 17th instant, W. A. Miller, salesman, met a Philadelphian and interested him in telephone service for his residence. Mr. Miller returned to Philadelphia with the signed application.

Gaul

North Philadelphia District. On January 4 a Christmas savings fund was started at the North Philadelphia office with 57 employees of the Commercial and Plant Departments.

An application for monitor switchboard with 7 stations has been obtained by Salesman Rosenblatt from Frank O'Keefe; 5 stations are to be installed in his storage house, one in the stable and one at his residence.

Garwood

Chester District. A new line, approximately a mile in length, has been built from the intersection of Swarthmore avenue and Haverford road, Milmont, to take care of the newly developed tract of Ridley Park Heights.

The Young Men's Christian Association at Chester now has private branch exchange service consisting of a switchboard and 10 substations. Thirteen additional stations have also been applied for. A new 80-line board will shortly be installed in the Chester building.

Hull

Jenkintown District. A No. 1 private branch exchange with 2 trunks and 18 stations has been installed for the Commissioners of Cheltenham Township. The switchboard is located in the Police Headquarters at Ogontz, and the additional stations are on poles in police boxes throughout the territory. The service supercedes eight 2-party and five direct line contracts.

C. H. Albright, local representative, has obtained an application for "The County Line Rural Telephone Company," Plan A, with 6 subscribers to be served from Hatboro.

Mathews

Norristown District. A salesman in the Norristown District just obtained an application from a subscriber whom he had been canvassing regularly for over five years.

No. 1 private branch exchange service has been recently installed in the I. H. Brendlinger Department Store, Norristown, Penna.

No. 1 private branch exchanges were also installed for the Spring City Knitting Company at Spring City and the Diamond Glass Company at Royersford, Pa.

Beerer

West Chester District. The traffic station report of November shows that the Oxford exchange had 528 stations; the January 7 report shows 569 stations, an increase of 41 stations in a month. Oxford is a residence town of about 2500 inhabitants, and the above figures speak very well for the salesmen.

One of the West Chester salesmen lately stopped at the Concordville general store. While there, he heard a woman talking over the public telephone. After she had finished her conversation, he immediately learned her name, called and obtained her signature for flat rate service.

Greenfield



Foreground. Three central office battery desk sets arranged with trouble keys. This is where the student gets the practical work of diagnosing trouble.

Background. Standard test panel, bridge and wire chief's testing equipment. This room includes both toll and local apparatus. Artificial toll line circuits are shown in this picture, as is also a No. 1 switchboard of the regulation type.

The Pittsburgh Plant School

F. K. Singer, Plant Instructor

PLANT men of The Central District & Printing Telegraph Company have heard more or less about their department's school during the last six years. In that period of time more than one man has credited the school with being the means by which he has been spurred on to accomplish tasks that lead to promotions.

It was in 1905 that S. A. Magerry, then a District Wire Chief, suggested the idea of a school to Martin J. Bishop. Mr. Bishop was at that time Superintendent of Maintenance for The C. D. & P. Tel. Co., and is now Superintendent of the Right of Way Division of the Pittsburgh Plant Department. Mr. Magerry is now Assistant to the Plant Supervisor of the Pittsburgh District.

The original suggestion, to the effect that a school for plant men be established, met with instant favor. It was not long before the first courses for study had been outlined and the apparatus necessary for demonstration put in place. The first school room was twelve feet by fourteen feet, and was that part of the building at No. 416 Seventh Avenue which had served time as a storing place. The space was sufficient for the making of a substantial foundation, upon which a larger school could be built as necessity warranted.

C. P. Wells was chosen as the first instructor for the new school. During the time that Mr. Wells taught, the school had a steady growth.

In 1907 it was found necessary to move to larger quarters. So the entire third floor of the Cherry Alley warehouse was placed at the disposal of the Plant School Instructor. In 1908 Mr. Wells gave up his connection with the school, and F. K. Singer, of the Inspection Division of The C. D. & P. Tel. Co. Plant Department, was selected as Instructor. Mr. Singer took hold of the work in July, 1909. At that time a policy of expansion was decided upon. In its infancy the school had aimed to train men in order that they might become practical installers' helpers and later full-fledged installers. The men, who were eligible to become students, were limited to residents of the city of Pittsburgh and its immediate surroundings. The apparatus used in the school consisted of sub-station equipment and those things pertain-

ing to private branch switchboard circuits. When Mr. Singer was placed in charge of the school, an additional floor was taken in the Cherry Alley building and courses in Central Office Maintenance, Toll Line Testing and Elementary Electricity were added. Since that time, the curriculum has been enlarged, until now the courses named later are offered. Several of these courses are given by mail. In work of this sort, the student is able to take about one lesson a week. At the conclusion of the course by mail, the student is usually brought into the school for a short time, in order that he may become familiar with the apparatus referred to in the lesson sheets.

Courses offered in the school are as follows, and should be undertaken by the student in the order named.

(A.) *Apprentice Installers.* This consists of a study of the sub-station circuits; manual work such as wiring, splicing, connecting stations, assembling sub-stations.

(B.) *Electrical.* A correspondence course which offers elementary electricity of a grade equal to that taught in High School physics. This course has seven sections, requiring that number of weeks for its completion.

(C.) *Sub-Station.* Sub-station principles given in this course are usually learned through correspondence. The experimental portion of the course is given at the completion of the written course and the students come to the school for this work. Each student successfully completing this and the preceding courses, must appear before an Examining Board. This board is composed of Mr. Magerry, the Plant Instructor, and five others. These five members change at each sitting of the board. Four are drawn from

A part of the room used for lectures and examinations is shown in this picture. The Plant Instructor has his office in this room.

among the District Plant Chiefs and the other changing member is always a Line Foreman. If the student is favorably passed upon by this board a certificate is presented.

Private Branch Exchange. Standard private branch exchange circuits and the actual operation of the boards are studied in this course. The wiring of circuits and the location of trouble on them is an important part of this particular study. A certificate is presented to students who satisfactorily complete this course.

Junior Central Office. Students at this point learn the intricacies of testing and terminal room practice. Storage batteries and generators are closely studied. Line operating cord telephone circuits and auxiliary circuits, such as night alarms, busy backs, etc., are gone into in detail. A certificate is presented when the student satisfactorily accomplishes the work set before him by this course.

Senior Central Office. This is the highest course in the School. Special attention is given to the presentation of the "B" board circuits in a clear manner. The study of the "B" board is optional, and a student may substitute a specialization in the workings of the toll board and toll lines. The student completing this course and approved by the Examining Board receives a certificate.

It was hardly more than a year ago that the first correspondence course was offered in connection with the Pittsburgh Plant School. Within a few months from the start more than 200 students were enrolled. Up to date about 50 Plant men have finished the correspondence course and received certificates.

The value of home study can scarcely be overestimated. The student must become thoughtful, in order to make intelligent progress. In time, he is induced to read books. It is not long before everyday things arouse his interest and the unusual things are sensed with eagerness. Then the student begins to place a value on his spare time, and as soon as one takes this attitude he has gone a long way toward success. Many men have truthfully said that for each hour spent in home study at least one dollar has been added to their earnings.

Perhaps the greatest advantage offered by the Plant School is that the courses follow the natural line of the Plant Department man's promotions. In this way he is enabled to obtain instruction at the precise time in his career when he feels an acute need for specialized knowledge.

When the School was started the prominent fact in the minds of the originators was to the effect that the School would help the Company. The school has been found to do this and more—it helps the men to help themselves.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

FEBRUARY 15, 1911

NO. 4

Prospects for the Sale of Telephone Service

The Second of a Series of Papers Read Before the Pittsburg Commercial School to Student Salesmen

[See *The Telephone News*, Issue of December 15, 1910]

The Efficiency of Routine Inspections and Tests

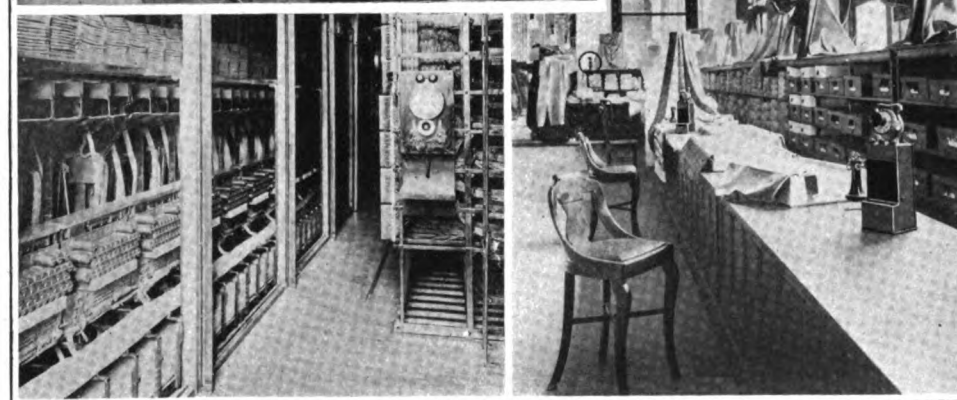
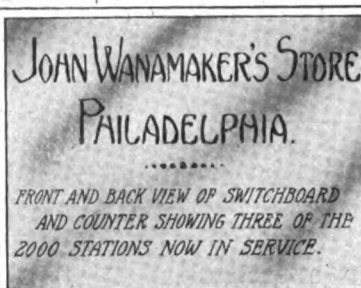
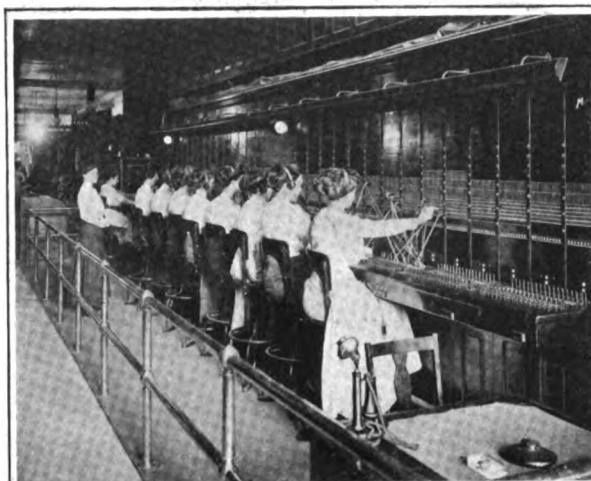
A Paper Presented January 3 Before The Philadelphia Telephone Society by W. T. LaRoche, Plant Superintendent, Philadelphia

IN order to maintain a force of salesmen in the field, it is necessary for the Telephone Company to spend a considerable amount of money. The responsibility for the expenditure of this money is placed in the hands of the sales force and it is the obligation of each salesman to see that the money intrusted to him is expended judiciously. In all expenditures there should be some definite purpose in view, and generally the aim should be to obtain as good a return as possible for the money spent. In one way, the efficacy of these expenditures is shown by the additional revenue received from the sale of telephone service by salesmen.

It has been said that to some extent the telephone sells itself. This is true, but if the Telephone Company depended entirely upon the revenue received from persons who took service on their own initiative, only those who are educated to or have an acute need for the telephone would be numbered among our subscribers. In addition, the class of service taken by these subscribers would be of the lowest priced grade, and in a majority of the cases not fitted to the patron's real needs. It should be remembered that the telephone business is a new industry and that a large proportion of the people now living can recall the time when the service was unknown. It is then the task of the salesman to educate in a telephone way those people who have spent a good part of their lives without the conveniences of the service. These people must also be made to realize that to-day the telephone is one of the most important factors in the conduct of the world's affairs.

You have frequently heard the word "Prospect" used, and now it will be defined. A popular definition, and one that is very general, is to the effect that a prospect is any person who is not a subscriber for telephone service. Theoretically, that is a good thought to bear in mind, but from a practical standpoint the definition has its limitations. It might be qualified by saying that a prospect is one who is without the service and is in a position to pay for it. However, the salesman in the field is the

(Continued on Page 19)



INSPECTIONS made by the Telephone Company may be divided into two main classes.

The first class includes the inspections that are made primarily to ascertain the condition of the plant, the condition of an office, the efficiency of employees either as units or groups, and whether or not work is being carried on in accordance with specifications and standard practice.

The second class may be subdivided into two groups. The first group includes the inspections that are made to locate and clear reported trouble; that is, trouble ordinarily reported by the Traffic Department and assigned by testing operators. The second group includes the routine inspections and tests that are made with the view to averting the occurrence of trouble and to reduce the period of its existence.

The immediate object of making the first class of in-

spections is to increase the efficiency of the organization, to regulate the wages of certain grades of employees, to improve methods and to maintain effective construction and operating standards. Reduced to its final analysis the object of these inspections is: 1st, effective service; 2d, economy.

An indication of the value of the first class of inspection is the results obtained from the practice of inspecting new station installations. Demerits (faults) per inspection of these installations have decreased as follows: 1908, 7.63; 1909, 6.03; 1910, 3.60. The procedure in making these inspections, charging demerits and recording is substantially as follows. A list of demerits covering 115 specific items of station installation, ranging from one demerit for a case of cleats placed too far apart to 50 demerits for a case of faulty installation resulting in interruption to service, has been established. An inspector, reporting to the Instructor of the School for Installers, inspects and records particulars of faulty work of about 10 per cent. of the new station installation jobs completed by each installer and one-man gang. From this record is compiled a monthly report giving—

(Continued on page 3)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

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Vol. VII FEBRUARY 15, 1911 No. 4

Anticipate Needs

FOR generations and centuries people lived in one-story huts thatched with straw and leaves. It is probable that the idea of building a second story and of living in it developed from the idea of utilizing the space under the low-pitched roof which covered the one-story buildings, as well as to get away from the livestock which were often housed in the first story. Then for more generations and centuries the people were content to live on the first floor and to occupy the second for sleeping apartments.

When they began to gather into communities, real estate in such places commenced to increase in value. It must continue to grow more valuable where manufacturing and other lines of industry progress.

Some engineer with a brain far beyond those of his contemporaries, in trying to solve the problem of more building floor space on the same acreage, developed the thought that the building need not be limited to two or five stories, but might be constructed with several times that number, provided that the proportionate wall thicknesses and tensile strength were properly maintained. Thus was born the skyscraper—one of the greatest economies in the business world.

Financial and other rewards came to this man because he *anticipated* a human need. If he had been content with the idea of removal to a place where more land could be had, his greatest work would have remained unborn. The innovation en-

riched him and opened the field for hundreds and thousands of inventions which, without the need created by that type of building, would never have existed.

If all of the great inventors, whose works benefit us at the present day, had not anticipated the needs of the people, the major part of the incentive to work out these inventions would have been lacking.

While necessity may be termed the mother of invention, those who would steal a march on others working in the same line with themselves must foresee the public need for greater things. They must precede the great army of workers who are contented to let each day's needs take care of themselves.

In industrial history the greatest fortunes have been made through anticipation. Foresight and the power to organize made millions for Drexel, Astor, Morgan, Rockefeller, Carnegie, Sage, Vanderbilt, Gould, Guggenheim, Spreckels, Armour, Rhoads and hundreds of others.

In the history of individual businesses, partnerships, companies and corporations, it is no less true that those who have *looked forward*, and have benefited by so doing, have reaped the rewards due them.

In our own Company special efforts are now being made to interest the public in the greater use of our toll service, and a great deal of thought has been given to the problem. The lines to other cities constitute one of the very best incentives which our salesman can offer to the public to use the Bell. Like all other uses to which the service is put, the traffic carried by toll lines will naturally be irregular in quantity. To keep these lines busy during all business hours, and to increase the night traffic to its proper proportion to the day figures, is the purpose of the Commercial Department. The toll developing coupon book mentioned in a recent issue of this paper is one of the recent plans, and the sale of toll line service to business people by contract is another. Many others are needed, not only for toll service, but for the growth of our general revenue and station figures.

In our station development plan we are anticipating an average normal growth that to an outsider might seem entirely satisfactory. Said an officer a few days ago: "We could perhaps drift to a figure

which would show a satisfactory growth, provided the public were the judge, but what we want is to *anticipate* that normal growth with genuine salesmanship; it must be salesmanship of the highest grade, so that we may realize the major part of that expected net gain in the very *near future*."

To be ranked as the highest type of Commercial representatives we must do more than sell service. *Even where we stir up interest* and create the demand we must plan to do the work in advance of the times. We must discount the future. We must make our prospects see the proposition now as we see it now, and not as they themselves will come to see it in a few years.

The results of the proper use of adequate telephone service are not to be compared with that of any other modern business or house convenience. Being fully convinced of that fact, we must develop new uses and present them for general adoption.

"Why didn't I think of that myself," said the men who were present at the first public demonstrations of hundreds of inventions. We will reply, "Because you failed to anticipate a public need."

It requires a thinker to devise plans for selling telephone service; he must also be experienced. He must be optimistic. He must have business imagination to such a degree that constant thinking about the service which he has to sell will develop strong propositions which must appeal to prospective heavier users as well as to prospective new users. The telephone service salesman who "saved a station" by obtaining telephone orders for all of the subscriber's stock of brooms had business imagination of one kind. The same may be said of the originators of numerous plans which have appeared in recent issues of THE TELEPHONE NEWS. The successful man who is to do his share in our station and revenue development must be willing and able to work out the details which form a part of any accomplishment of merit.

In our force we want to think that everyone measures up to these requirements.

We want that proposed station and revenue development very soon.

Can we get it?

Every Bell man knows the answer.

The Efficiency of Routine Inspections and Tests

(Continued from page 1)

First, by district foremen's districts, L. O. No., address, installer's name, an itemized statement of work not done in accordance with specifications and standard practice and the demerit charges for each item;

Second, a summary showing for the Division, for each district foreman's district, for each installer, for each one-man gang, the number of inspections of new station installations, the demerits per inspection, order of demerit.

This report indicates clearly the quality of work done by the division, by each district, by installers and by one-man gangs, and their progress, and is an incentive for them to reach and maintain a high construction standard. On this report is based in part the district foremen's monthly order of merit report which indicates, among other matters, for the division, for each district foreman's district, for each installer and one-man gang, the quantity and the quality of, and the total and unit time required to complete, new station installations. The continuance of the maximum rate of pay of installers and one-man gangs is contingent upon the quality and quantity of their work as shown by this report, and, as may be inferred, they naturally take keen interest in the first class of inspections in so far as they relate to their work. While the necessity for the making of the first class of inspections will decrease in a measure proportional to the organization's increase in efficiency, it is altogether probable that the time when it will be expedient to discontinue them will never come.

The first group of the second class of inspections is analogous to the inspections or examinations made by the cobbler incidental to repairing shoes. He inspects and tests the shoes before he commences the job of repairing them, during the process of repairs and upon the completion of repairs. The procedure of plant employees in handling telephone trouble is fundamentally the same. As telephone trouble and shoe trouble, like taxes and death, are absolute certainties, it seems obvious that these inspections are and always will be necessary for the up-keep of the telephone plant.

The second group of the second class of inspections—the routine inspections and tests—are made by the maintenance and cable divisions, as before indicated, for the purpose of averting the occurrence of trouble and to reduce the period of its existence. They may be further divided into four sub-groups—

First, central office; second, station; third, underground and aerial cable; fourth, line.

The scope of each of these sub-groups of inspections and tests is, however, greater than the classification as designated indicates it to be. Among the central office tests is the line volt-meter test, which is made six times a week on all subscribers' lines. This test indicates the continuity of the line under test from the point in the switchboard, from which the test is made, to and including the ringing circuit of the station apparatus, and whether or not that line is shunted, grounded or crossed at any point. This test then covers in part all of the four classes of plant. Likewise, in calling and making transmission tests incident to routine station inspection, is ascertained the condition of all the intervening plant between the station under test, including the latter and the point in the switchboard where the connection is established.

Routine Tests

Routine central office, station and line tests, and also cable tests, the latter in so far as they are made in co-relation with the other tests, are made by the wire chief's force. Routine cable tests are made by the Cable Division. A very important and effective routine trunk test is also made daily by the Traffic Department, generally between 3 A. M. and 5 A. M. It covers the operation of all trunk signals, ringing and transmission tests, and indicates the operative condition of one of the most important, if not the most important, parts of the telephone plant. This is a test that the Traffic Department can make as effectively and unquestionably far more economically than the plant force. These questions naturally arise—1st, Why not have the Traffic Department make certain routine tests in all central offices where a maintenance force is not on duty? 2d, Why not equip with keyboard test sets all "A" positions in all central offices and have each "A" operator: 1st, test all her cord circuits daily; 2d, test cord circuits before reporting them in trouble; 3d, before discarding a pair of cords, determine with the aid of the test set whether or not the pair in question is in operative condition?

The major portion of routine central office tests in all large central offices is made by the central office night maintenance force. With the view to ascertaining, among other matters, the relative efficiency of the latter and the amount of trouble detected on the various routine central office night tests, a record of the trouble in question and the

routine central office night test schedule or more effective service on the part of the maintenance organization.

Trouble Records

The maintenance division kept for the month of December, 1910, the most exhaustive set of trouble records it has ever attempted. The outcome of a study of the statistics compiled from these records will, it is thought, be increased maintenance efficiency resulting from a change in the routine inspection and test schedules and from the establishment, 1st, for each central office district of a trouble standard; 2d, for each central office district and for the division of an improved order of merit report. The latter is going to be based, in the matter of trouble, not on reported trouble records, but on routine inspections and tests made and recorded by a disinterested employee corresponding to the one who inspects new station installations. These inspections and tests will include all the tests specified in sheet "B," and, in addition thereto, will include station inspections and tests, including the artificial cable transmission test recently proposed by the Engineering Department, and unquestionably will be of far more value in indicating the general operative condition of the plant than any tests or inspections made or records kept heretofore.

Tables Described

Table "B" indicates in a measure the comparative operative condition of five central office districts. The tests specified therein were made by three capable, staid, truthful and disinterested

Table A
Station Trouble Statistics—Year 1907

Classification	No. of Stas.	Routine Insp.s. Per Year		Trouble Found on Routine Inspections			Reported Trouble		Total Trouble	
				Cases	Cases Per Year					
		Number	Per Sta.		Per Sta.	Insp.	Cases	Per Sta.	Cases	Per Sta.
Business . .	139	685	5.	69	.49	.10	87	.63	156	1.12
Business . .	124	111	.89	26	.20	.23	103	.83	129	1.04
Residence .	71	295	4.1	35	.50	.11	31	.43	66	.93
Residence .	61	53	.87	10	.16	.20	37	.60	47	.77

time (unit and total) spent in making the various classes of tests and clearing the central office trouble disclosed thereby was kept for a period of nine days during the month of April, 1908. This trouble record appeared to show that a total of 3,149 cases of trouble was detected, of which 2,195 cases (69.7 per cent.) were keyboard trouble and the balance, 954 cases (30.3 per cent.), were subscriber's line trouble; that the number of cases of the former trouble per cord circuit per test was 2.87 per cent., and, for the nine days, 17.2 per cent. per cord circuit; and that the number of cases of the latter trouble (subscriber's line) per line per test was .33 per cent. and for the nine days 2.1 per cent. per line. From this report and several subsequent investigations the conclusion was reached that periods between certain routine central office night tests could be increased without lowering the maintenance standard. During the summer of 1908 the following changes were made in the schedule of these tests: Line lamp test changed from six times a week to semi-weekly; 3d connection jack test changed from weekly to monthly; 3d connection cord circuit and cord circuit changed from six times a week to weekly. Wire chiefs and their superior Plant officers are agreed that these changes have not been made at the expense of the maintenance standard. Mr. Driver's opinion that Philadelphia maintenance is far better than it was during the year 1908 may be interpreted to signify that the improvement is due to either or both the change in the

employees with the view to ascertaining the amount of trouble existing as between districts in which a night maintenance force is on duty and districts in which there is not. The routine central office schedule was, at the time these tests were made, uniform for the five central offices. The only difference in the test procedure was that at Filbert and Walnut the tests were made at night, and at the other central offices in the daytime. The percentage of trouble detected, based on the number of tests made, was for Filbert and Walnut 1.7 per cent. (an extraordinarily low percentage) and for the three suburban central offices 7.8 per cent. As the three employees who made these tests assert that they were both made and recorded accurately and deny having visited our Filbert neighbor either before or after making them, the record must be accepted as it stands. It indicates at the time these tests were made that the operative condition of the three suburban plants was a trifle below the standard for districts in which a night maintenance force is not on duty, and that the operative condition of Filbert and Walnut was very much better than the standard for districts in which a night maintenance force is on duty.

Tables "C," "D," "E" and "F"

Tables "C," "D," "E" and "F" were compiled from the special trouble records that were kept by the maintenance division for the month of December. They are based on the first nine days of the month, are figured on a monthly basis and include not only the trouble reported by the

The Efficiency of Routine Inspections and Tests

(Continued)

Traffic Department, but all cases of trouble handled by the maintenance division.

The definitions of the classes of trouble specified in tables "C" and "F" are:

"First O. K." indicates that a circuit was reported in trouble, that volt-meter, ringing, transmission and receiving tests were made, ordinarily by the testing operator, and that no trouble was disclosed by these tests.

"Test O. K." same as "First O. K." except that the station is not raised. Test O. K.'s are permissible only when there is reason for belief that the subscriber's place is closed.

Table B
Routine Central Office Tests

Nature of Tests	Filbert and Walnut			Myk., Chest. Hill & Fkfd.		
	Number of Tests	Cases of Trouble	% of Trouble per Test	Number of Tests	Cases of Trouble	% of Trouble per Test
Line V. M. . . .	200	0	—	300	3	1.
Line Lamp . . .	200	1	.5	300	8	2.6
3d Connection Jack	200	0	—	300	9	3.
Cord Circuit "A"	200	19	9.5	302	82	27.
Cord Circuit "B"	43	3	7.	33	27	80.
3d Connection "A"	200	0	—	302	8	2.6
3d Connection "B"	43	0	—	20	0	—
Ringing Key "A"	400	5	.1	270	22	8.
Ringing Key "B"	100	1	1.	40	0	—
Listening Key	200	1	.5	252	7	2.7
TOTAL	1,786	30	1.7	2,119	166	7.8

"2d O. K." indicates that a circuit was reported in trouble, that the case was assigned to and investigated by a trouble man and that no trouble was found.

"Receiver Off" indicates that the receiver of a telephone set was off its hook and that on account of this condition the line was plugged out of service.

"Closed" indicates that a station was reported as "Can't raise," and that an investigation disclosed that the subscriber's place was closed.

"Automatic 2d O. K." same as "2d O. K.," except that it relates to coin signal and money box equipment.

"Trunk and Calling Circuit" indicates "B" position, trunk, calling and other inter-office circuit trouble.

"Central Office" indicates central office trouble other than that designated as "Trunk and Calling Circuit."

"Line" indicates "Interior Block Loop," and all aerial construction trouble except aerial cable trouble.

"Cable" indicates aerial and underground cable trouble.

"Station" indicates station apparatus, house cable and station wiring trouble.

Table "C" indicates that 107,847 cases of trouble were handled during the month. Based on the trouble reported by the Traffic Department on eleven peg count days of last year, it is figured that of the 107,847 cases, 96,255 were reported by the Traffic Department, and that the balance, 11,592, were detected by the maintenance division principally on rou-

tine inspections and tests. The trouble detected by the maintenance division existed principally on the plant designated as "Trunks and Calling Circuits," "Central Office," "Line," "Cable" and "Station." It is figured that 40 per cent. of the sum of these five classes of trouble was detected by the maintenance division.

Fourteen per cent. of the "1st" and "Test O. K.'s"—4478—were plugged out of service largely, it is believed, on account of receivers being off hooks. All cases of "Receiver Off" are plugged out of service. It therefore appears that 36,668 cases, or 34 per cent. of the total number of cases, were due to the improper use of telephone sets by subscribers. Counting this as station trouble, which, by the way, is its proper classification, increases the latter to 52,169, or 48 per cent. of the total number of cases. Not including "1st O. K.'s," "Test O. K.'s" and "Receiver Off," the cases of station trouble for the three classes of stations were per station: No. 1 P. B. X. station (including P. B. X. Swbd.), .197; No. 2 P. B. X. station, .125; ordinary station, .097. Fifty per cent. of the No. 1 P. B. X. station trouble existed on No. 1 P. B. X. switchboards. This statement appears to indicate that station trouble is in a measure proportionate to the complexity of station apparatus. This also applies to central office conditions. Aside from the efficiency of the maintenance and construction organizations, the type and quality of the plant and weather conditions, the principal factors determining trouble conditions are assumed to be, in the order of their importance:

- First—The manner of using the plant.
- Second—The complexity of the plant.
- Third—The call rate.

Table "D"

Table "D" indicates in a measure the effect of all trouble that was handled during the month of December. It was the first report of its kind that has been compiled by the Philadelphia Division, and it has not been determined whether or not it indicates efficient maintenance. Time is computed for each case of trouble reported by the Traffic Department from the time it was reported, as shown by the trouble ticket, to the time it was cleared; and for each case of trouble detected by the maintenance force from the time it was detected to the time it was cleared. The ratio of trouble resulting in interruption to service to total trouble, 43¼ per cent., seems high, and is largely due to the cases of "receiver off hook" and to 14 per cent. of the "1st" and "Test O. K.'s." Another way of stating the interrupted period per station is that the ratio of minutes of interrupted service to total station minutes is less 1/2000.

Table C

Summary of Trouble—December, 1910

	Cases of Trouble	Cases of Trouble per Station	Calls per Case of Trouble
1st O. K.'s	19,143	.166	1,543
Test O. K.'s	12,846	.111	2,002
2d O. K.'s	5,118	.044	5,024
Receiver Off	32,190	.279	798
Closed	30	.0003	857,235
Automatic—2d O. K.'s	630	.005	40,820
Trunk and C. C.	4,773	.041	5,388
TOTAL	74,730	.649	344
Central Office	15,966	.138	1,617
Line	822	.007	31,285
Cable	828	.007	31,059
TOTAL	1,650	.014	15,586
Station	15,501	.134	1,659
GRAND TOTAL	10,7847	.937	238

Table "E"

In Table "E" trouble is divided into two classes—avoidable and unavoidable. By avoidable trouble is meant the trouble that could have been averted by routine inspections or tests. By unavoidable trouble is meant the trouble that could not have been averted by routine inspections or tests. The ratio of avoidable trouble to total trouble, 4.35 per cent. seems low and is due mainly to cases of "receiver off hook" and to 14 per cent. of the "1st" & "Test O. K.'s." A careful check of 100 written maintenance complaints which were received during the latter part of last year appears to indicate that only 27 could have been averted by routine inspections or tests.

In Table F trouble conditions of typical busi-

Table D
Effect of Trouble—December, 1910

	Service Interrupted	Service Affected	Service not Affected	Total or Average
Total number of cases of trouble	46,638	20,127	41,082	107,847
Per cent. of total trouble	43.25%	18.66%	38.09%	100%
Cases of trouble per station . . .	.405	.175	.357	.937
Total hours, minutes . . .	24,723 hs. 30 min.	23,750 hs. 45 min.	20,152 hs. 48 min.	67,637 hs. 3 min.
Minutes per station	12.89	11.87	10.5	35.3
Minutes per case of trouble . . .	39.5	70.2	29.4	37.6

ness and residence districts are compared. Figured on a station basis, unit trouble in the residence district was 12.7 per cent. less than it was in the business district. Figured on a call basis, unit trouble in the business district was 10 per cent. less than in the residence district. The most marked difference between any of the classes of trouble is station trouble. This trouble in the residence district was 13.9 per cent. less than it was in the business district. Making due allowance for the difference in station conditions, the more effective station maintenance job was done apparently in the residence district. Maintenance as a whole, however, appears to have been handled more effectively in the business district.

The term call rate as used in Table F is probably a misnomer. It is computed on this basis: Originating calls, plus incoming calls, plus calls completed by "A" operators, plus intercommunicating P. B. X. station calls (the latter based on the regular exchange station call rate), and is intended to indicate the number of times the average station was used. The call rate divided by two is supposed to indicate the corresponding number of connections established. Intercommunicating P. B. X. station calls are not included in Table "C."

The statistics given in Table "A" relate to ordinary stations and were compiled with the view to ascertaining the efficacy of routine station inspections.

Table E.
Avoidable and Unavoidable Trouble
December, 1910

	Avoidable	Unavoidable	Total
Number of cases	4,686	103,161	107,847
Cases per station . . . .	.040	.897	.937
Per Cent. of Total	4.35%	95.6%	100%

These differences of trouble percentages indicate in a measure the amount of station trouble that may be averted by routine station inspections. The unit labor costs of the routine station inspections made by station inspectors are 11.4 cents, and of the reported trouble cleared by senior inspectors 13.6 cents. Annual labor costs per business station for making routine station inspections and clearing reported station trouble are figured to have been, for the stations inspected five times a year, 65½ cents; and, for the stations inspected .89 times per year, 21.3 cents—a difference of 44.2 cents. Figured on the same basis the labor costs of making routine station inspections and clearing reported station trouble were 34.4 cents less per station for the residence stations inspected .87 times a year than they were for the residence stations inspected 4.1 times per year. Based on these figures the minimum cost of reducing reported station trouble 20 per cent. by increasing the number of routine station inspections, as indicated, would be 40 cents per year per station.

Table "A" appears to indicate that both reported and total troubles that existed on the residence stations inspected .87 times per year were less than the corresponding trouble that existed on the business stations that were inspected five times a year. Table "F" indicates that station trouble in the residence district was 13.9 per cent. less than it was in the business district. Inasmuch as the residence station call rate is less than the business station call rate and the revenue from the average business station is greater than it is from the average residence station, a uniform routine station inspection schedule for both residence and business stations seems fallacious.

Inspection Schedule Modified

During the month of July, 1910, the Philadelphia station inspection schedule was modified. The most radical change made was the abolition of routine residence station inspections, except No. 2 P. B. X. residence stations. Inasmuch as the residence stations, in question, are scheduled to be tested from the central office semi-annually, including transmission and receiving tests, by the maintenance force, the indications are that this change will not result in lowering the maintenance standard.

There seems to be only one factor worthy of consideration that appears to warrant the continuance of the practice of making routine inspections at ordinary stations, and that is, the question of cleaning telephone sets. While there is nothing in the usual form of telephone contract which in any manner indicates that telephone sets are to be cleaned either by or at the expense of the Telephone Company, the Telephone Company has been doing this (for the last twenty years) rather ineffectively it must be admitted. The appearance of the average telephone set in the matter of cleanliness is largely dependent upon the conditions of its immediate surroundings and the cleanliness of those who use it. To keep telephone sets "reasonably clean," it is estimated that it would be necessary to clean the average business telephone set five times a year, the average residence telephone set 1½ times a year; and the average telephone set 3.2 times a year. The minimum annual cost of carrying out this cleaning schedule in Philadelphia would be per station thirty-six cents; total, \$44,100. Thirty-six cents is 24 per cent. of the initial value of a portable desk stand. It would be cheaper for the Telephone Company to change all portable desk stands every three years than it would be to keep them "reasonably clean."

The general practice of cleaning residence station telephone sets, except No. 2 P. B. X. stations, was discontinued last July and the intent

Table F.

Comparative Summary of Trouble—December, 1910.

	Cases of Trouble		Cases of Trouble Per Station		Calls per Case of Trouble	
	West Phila.	Wal. & Fil.	West Phila.	Wal. & Fil.	West Phila.	Wal. & Fil.
1st O. K.'s	3,234	1,995	.168	.097	1,290	3,624
Test O. K.'s	3,423	2,748	.178	.134	1,219	2,631
2nd O. K.'s	864	972	.045	.047	4,829	7,449
Receiver Off.	2,888	4,083	.150	.200	1,445	1,771
Closed	102	189	.005	.009	40,903	38,258
Auto. 2nd O. K.'s	519	903	.030	.044	8,039	8,007
Trunks & C. C.						
TOTAL	11,090	10,890	.577	.533	376	664
Central Office	1,950	2,910	.101	.142	2,140	2,485
Line	72	9	.003		57,946	803,412
Cable	162	69	.008	.003	25,754	104,793
TOTAL	234	78	.012	.038	17,829	92,701
Station	1,743	4,695	.090	.229	2,394	1,540
GRAND TOTAL	15,017	18,573	.782	.909	278	390
Stations	19,197	20,412				
Per Cent. of Residence Sta.	58%	8%				
Call Rate per Mo.	\$217	\$354				
" " Day	8.05	13.12				

is also to abolish this practice in so far as it relates to the ordinary class of business station.

Cable Failures

Next to storm trouble, failures of large trunk and subscribers cables is the most serious routine trouble problem. In the event of trunk cable failure the circuits therein are transferred to available spares, if any, of other cables by the central office maintenance force. This work is necessarily slow and the cable trouble not infrequently is cleared before the transfer of circuits from the cable in trouble is completed. Meanwhile service on interoffice circuits either is interrupted or seriously affected. The time required to get a gang on the job, pump out manholes, drive gas from manholes, to rod, pull in and splice, are the principal factors that retard the prompt clearance of cable trouble. Fortunately trunk cable failure is not a common occurrence. Last year there were three trunk cable failures: a 440 pr. cable, a 330 pr. cable and a 30 pr. cable.

The average number of underground and block cable failures including trunk cables, per month, was for 1908, 27; for 1909, 22.33; for 1910, 32.36. Fifty-seven per cent. of the number of failures for the three years was block cable failures. Both on account of the rapid extension of block cable distribution and the gradual increase in the length of the average block cable, it seems probable that there will be, from year to year, an increase in cable failures, and that they will be, in a measure, proportionate to the length or number of interior block cables. Five years hence the maintenance and cable divisions ought to be able to appreciate thoroughly the tribulations of some of our sister companies.

The force engaged on electrolysis tests consists of four men and covers the plant semi-annually. This force detected last year electrolytic conditions effecting 83 cables, 40 of which were due to changes in ground potential caused by the transit companies' load changes due to the trolley strike. There were thirteen cable failures last year due to electrolytic conditions. The length of the cable lost due to this trouble was 750 feet. Figured on this basis the life of a por-

tion of the present underground cable plant will be upwards of 6,000 years. It is hoped that the Auditor will give this point due consideration in establishing this year's depreciation charge for Philadelphia. No recent changes in routine electrolysis tests have been made and none is contemplated.

Prior to September, 1908, routine cable insulation tests were made on all cables. The force engaged on these tests consisted of six men and tested semi-annually from five per cent. to ten per cent. of the pairs of each cable.

An investigation of the cable trouble reported during eight months of 1908, disclosed that of a total of 845 cases, eighty-six (ten per cent.) were detected on routine cable insulation tests and that very few, if any, of these cases would have resulted in cable failure. The conclusion was reached that the results obtained did not warrant the expense of making these tests on subscribers' cables and the practice was accordingly discontinued during the month of September, 1908. Of the three trunk cable failures last year, none it is thought, could have been averted by these tests.

Insulation Tests

Last year routine insulation tests were made on 629 pairs of 40 unloaded trunk cables with out disclosing a case of trouble that would have resulted in cable failure. An experiment, covering a period of five months, made on several cables in a manhole with the view to ascertaining, among other matters, the effect of moisture on cable insulation and whether or not cable failures due to moisture could be averted by routine insulation cable tests, appeared to indicate that these tests, unless frequently and also properly made, are of no practical value in averting failure of subscribers' cables. To make these tests properly on subscribers' cables each pair tested should be disconnected from the binding posts of all the cable terminals wherein it appears. As may be inferred the cost of doing this would be prohibitive.

Virtually all incipient cable trouble is detected either by the Traffic Department or the maintenance division. Its existence is ordinarily re-

One Farmer Writes:
"The Bell Telephone is the best investment I ever made. I used to get up at one or two o'clock and drive eight miles to be at market first. Now I sell for better prices by telephone. This more than pays for the service, and I am also protected against sickness or other misfortune."
You can build and own your line. Write today.
Name of Local Co.
Name of Dist. Mgr. or Agt.
Address

Get Ready by Telephone
Spring Planting suggests many wants; plants, seeds, tomatoes, new implements.
Bell Telephone
your orders. The Rural Telephone Line is a boon to the farmer.
Write today for booklet.
Name of Local Company
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Address

"We Are Snowed In"
When roads are impassable and the Storm King isolates the farm, the
Bell Telephone
gives a feeling of comfort and security. The doctor, friends, neighbors and relatives are all within call.
Write today about Rural Line Service.
Name of Local Co.
Name of Dist. Mgr. or Agt.
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Telephone for Help in Winter Jobs
The repairs during dull season are facilitated if you have a
Bell Telephone
Workmen can be called, while materials are readily ordered. The telephone is the year-round farmer's aid.
Write today for free booklet
Name of Local Co.
Name of Dist. Mgr. or Agt.
Address

"How About..."
The winter for eggs, other farm products may be...
Bell Telephone
Investigate Line Plan. or rent the... Write today... testing book...
Name of Local Company
Name of District Manager
Address

Part of a series of rural advertisements now appearing in the newspapers reaching...

The Efficiency of Routine Inspections and Tests

(Continued)

vealed by noisy lines and failure of individual cable circuits. The practice of the central office maintenance force is to report promptly to the cable division in case trouble in the same cable affects more than two pairs the same day or more than four pairs in five consecutive days. It is of course understood that in the event of trouble in a cable in which there are no spares that the trouble is given prompt attention.

Routine insulation cable tests on all cables, except loaded cables which are tested monthly and apparently without reason, have been discontinued. The consensus of opinion is that the discontinuance of these tests has not affected the maintenance standard. A pertinent query is, what economy has been effected by changing the routine inspection and test schedules? According to Plant records repair charges were less last year than they were during any year since 1905. Since November, 1904, the number of stations has increased one hundred and twenty-four per cent.; the number of maintenance division employees (wire chiefs and their subordinates) has decreased thirteen per cent.; and the number of stations per maintenance division employee has increased one hundred and seventy per cent. While a portion of the economy effected as indicated by this statement is due to changes in the practice of making routine inspections and tests, other factors in this matter are the Engineering and Plant Departments' general increase in efficiency, changes in the art, the rapid extension of the permanent plant and last, but not least, to the fast pace in repair charges set by the Baltimore & Washington divisions.

The principal factor on which the service standard (including maintenance) hinges is a Commercial Department problem, revenue. It seems obvious that if the revenue per year per station were \$1,000 the present service standard would be as inadequate as that of 1880 would be applied to present conditions. Here is a partial forecast of the plant conditions that probably will obtain after the Commercial Department shall succeed in increasing the yearly revenue per station to \$1,000; duplicate distribution and station equipment; all central office buildings—fire, flood, bomb and earthquake proof; all stations direct connected; transmission standard, 4 miles of 19 gauge cable; all telephone sets inspected daily and also probably cleaned; average time required to clear troubles, 5 minutes; trouble rate per month per station, 10 per cent.

Reverting from the realm of fancy, the thing for the plant organization to do is to give the most effective maintenance service it possibly can with the facilities at hand; and, in the matter of trouble in spite of the complexity of the plant and the conditions, resulting in trouble, beyond the control of the Telephone Company, always to view it in the light that a portion is due to error on the part of the plant organization.

Harrisburg Division J. C. WEIRICK, Division Correspondent

Allentown District. The Plant Department has completed the erection of a 100-pair cable from the Catasauqua central office to the Borough of Northampton, a distance of 2½ miles.

George R. Roth, reporter for the *Allentown Leader*, a daily evening paper, visited the Allentown central office a few days ago and was so impressed that he published an article covering one and one-half columns.

Again the telephone has been put to a new use, says a Reading paper. It acted as an instrument at a christening of the child of Mr. and Mrs. Frank Ditchey, of Tamaqua.

On the day set for the event Mr. Ditchey expected his wife's brother, Howard Dreher, of Chicago, to be present and stand sponsor for the child. He was, however, unable to attend and telephone communications were opened. In this way the word of Mr. Dreher was received and he gave permission to the priest who performed the ceremony to attach his name to the certificate. This was satisfactory and the christening took place just as if Mr. Dreher had been present in person.

Harrisburg District. The following was copied from a set of "rules" hanging from the telephone of one of our subscribers at Harrisburg. This particular subscriber owns a cigar store and is very much annoyed by people using his telephone.

RULES

For Those Who Need Them.

1. Do not hold lengthy conversations on the telephone; somebody might be calling us, and of course they cannot reach us if you monopolize the telephone.
2. Do not "jolly" some friend on the telephone. If she isn't worth calling on, she is hardly worth telephoning. Our business is a little more important to us than your social affairs.
3. Do not call up a party at some other telephone and ask him to summon a neighbor while you wait. You are using the telephone entirely too long when you do this.

Remember

Everybody has the same privilege you have, and if they all abuse the use of this telephone, how many more would we need?
Reading District.

"Hello! Say brother, listen just a moment. Want to tell you about the mission Dr. Weddell is holding in the Baptist Church. Tried to get you before but somehow you or the line was busy and we did not get your ear. Dr. Weddell has been speaking every evening during the past week in our church on the vital themes of our religion in a way that has been very helpful. You have three more chances. Tomorrow at 10:30 his theme will be "The Scarlet Thread in the Window." At 2 p. m. he will speak to the Sunday School and in the evening at 7:00 p. m. his subject will be "The Gospel Pronunciamento." The place?
THE BAPTIST CHURCH
Who's talking? The pastor and if you knew how much he is depending on you tomorrow you would be there, all of you with your families and friends. I wanted to say more but time's up.

A Shamokin minister has seen fit to make use of a series of advertisements similar to that reproduced in an effort to increase attendance at his church.

The following is a quotation from a letter of appreciation received by our local manager at Lebanon, Pa.:

"On account of sickness my home was quarantined, and in order to keep in close touch with my work I was compelled to ask for your immediate attention in installing telephone service. I greatly appreciate the courtesy shown me."

The following note of appreciation was written the Reading district manager by the head of a prominent local firm:

"I had occasion yesterday to telephone to Cleveland, Ohio, at two different times, and in both instances the connection was perfect and it was possible for me to communicate as readily as on a local call.

"I am calling your attention to this in order that you may know of my appreciation of the satisfactory business communication at this distance."

Scranton District. A prominent resident of Scranton, who has been an Opposition subscriber for years, recently called at our Commercial office and stated that she could not reach a number of her friends, to whom she wanted to extend invitations over the lines of the Opposition Com-



"Can You Use Fifty Broilers To-day?"

The chicken raiser realizes the full value of the

Bell Telephone

It is the ready messenger which so aids in the pleasures and work of the farm that the edge is taken from the word rural.

Write to-day for Rural Line Booklet.

Name of Local Co.
Name of Dist. Mgr. or Agt.
Address



"How Are you, Mother?"

The loneliness of life on the farm is dispelled by the

Bell Telephone

The most isolated farm dwellers may easily reach relatives, neighbors and friends. You can equip your farm. Write to-day for information.

Name of Local Co.
Name of Dist. Mgr. or Agt.
Address



Here is an example:

A farmer had a lot of baled hay. He reached several dealers by

Bell Telephone

Then telephoned and ordered box car to siding. Received word when this was done and delivered hay. Check a few days later.

Send for interesting booklet.

Name of Local Co.
Name of Dist. Mgr. or Agt.
Address



The Bell Telephone Betters Farm Life

The U. S. Census Bureau Reports: "No single factor has played so great a part in the amelioration of the conditions of life on the farms of the United States as has the telephone."

Are you receiving the benefits of Rural Line Service? If not, write us today.

Name of Local Company
Name of Dist. Mgr. or Agent
Address

the smaller towns and rural districts in the territory of the combined companies.

pany. She placed 28 calls with the clerk in charge of the attended public station, with the result that she made favorable comments on the service and courteous treatment she received from our Company. She also signed an application to cover the installation of direct line service in her residence to replace the Opposition service.

A recent request for information at the Scranton office, by one of the large manufacturing concerns of a nearby town, thanked us for the courtesies extended, and made a statement, which was underscored, stating that its manager fully realizes that every desirable firm has Bell service and cannot well afford to do business without it.

The Scranton-Wilkes-Barre cable was completed on January 28, 1911. This will give 30 second service between these points.

A commercial traveler placed a call from our Honesdale attended public station for a subscriber in Scranton. The connection was established inside of five minutes. He told our Clerk that he had placed this same call over the lines of the Opposition company, and after waiting for twenty minutes he had not secured results; therefore, he called at our office.

A foreign manufacturing concern, recently advertised a Bell connection in its branch store in Carbondale. The Traffic Department received a number of inquiries for that firm, but did not know it as a subscriber. The Chief Operator was informed, by one of the persons calling, that the firm had a Bell connection. The Commercial department was advised, and after thorough investigation learned that it was advertising the call number of one of our subscribers. Our representative called on the firm, and after explaining the advantages of the directory listing, as well as the advantages of having the use of the service, he secured their application for service.

Wilkes-Barre District. The Y. M. C. A. of Berwick expressed its appreciation of a prompt installation made on February 1. At 8.00 A. M. an officer telephoned a request for an additional station to be placed in the dormitory in the room of a guest who had suddenly been taken ill. By 8.10 our salesman had obtained the application and telephoned instructions for line order. Meantime the Plant department had been notified and an installer was on the job at 8.22. At 8.50 the station had been O. K'ed.

Williamsport District. Mr. Jobson, a traveling salesman, called from the Updegraff Hotel at Williamsport a few days ago for L. D. Herritt in care of the Windsor Hotel at Philadelphia. Mr. Herritt was not registered at the Windsor Hotel. The operator handling the call, know-

ing that Mr. Herritt's home is in Jersey Shore, located him there. She then informed the person calling that she had located Mr. Herritt at Jersey Shore.

Mr. Brown called from the Park Hotel station and informed the Williamsport toll operator that there was a call at Lock Haven for him, but on account of lack of time he could not talk from there, and had only a few minutes to wait in Williamsport. The call was referred to the Lock Haven supervisor, who informed Williamsport that the call was from Milton. Five minutes from the time Mr. Brown inquired about the call the conversation was established and completed.

Patron—"Operator what does it cost to talk to Renovo, Pa.?"

Operator—"Thirty-five cents for three minutes and ten cents for each additional minute."

Patron—"I'll talk ten cents worth; it will take me only a minute."

A letter received from the Nittany Iron Company reads as follows:

"We beg to acknowledge receipt of the map you sent us a few days ago showing the lines of The Bell Telephone Company and we appreciate your kindness very much. It certainly has been very well done and it occupies a prominent position on the walls of our office.

We thank you for your thoughtfulness.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Bridgeton Sub-District. Contracts have been executed with the following rural telephone companies:

	Stations.	Exchange.
Buttonwood	6	Bridgeton
Love Lane	7	"

Continuous service is now being furnished at the Port Norris and Cedarville Exchanges.

Two additional trunk lines are being strung from Bridgeton to Cedarville to take care of the increased growth in Cedarville.

Camden District. A Camden subscriber received a call from Cape May at 5.05 P. M. the other day, making inquiries regarding a real estate transaction. In order to give a satisfactory answer he had to call a firm in Baltimore, Md., and get their reply. This done, he put in a return call to the sender, to the great satisfaction of all concerned. The whole transaction, includ-

ing a \$15,000 deal, was completed at 5.25 P. M. The Camden District Manager received congratulations from this user.

Fire of mysterious origin destroyed the barns and outbuildings on the farm of George Holdcraft, about two miles from Wenonah, Monday, January 31, about 11.30 P. M. His sister was aroused from her sleep by a crackling sound, and looking out of her bedroom window discovered the flames. She immediately notified her brother, who called the Wenonah Fire Company and others from that neighborhood to the ground.

Croxtan

Dover District. "Do you grease the pan for angel cake?" This was the question asked by a Dover subscriber a few nights ago. Information had nothing in her files covering this point in culinary practice, but information was obtained from a local bakery to the effect that lubrication in this instance was unnecessary and the subscriber was so advised, all in the space of about three minutes.

A gentleman called at the Commercial office in Dover the other day, stating that he wished to talk to a firm in Philadelphia that rebuilt and cleaned ostrich plumes. He could give no name or address, but his call was completed in five minutes. He complimented the Company on its quick and efficient service.

A salesman in the Dover District had called several times on a prospective subscriber relative to telephone service, but could not land the application. The argument relating to illness in the family was emphasized quite strongly, but the prospect boasted of the absence of sickness in his home. Shortly afterward he was seized with an attack of acute indigestion. A telephone was installed in the home within the next few days.

Salesman Wootton, of the Dover Sub-District, signed the Delaware Produce Exchange, of Dover, for a No. 2 P. B. X. with two trunks and six stations.

Prince

Trenton District. Trenton merchants are giving evidence of their appreciation of the telephone toll-coupon book. Orders have been received for approximately 4,900 of these books.

Systematic salesmanship canvassing is continuing to produce results which more than justify its existence. The number of stations gained which can be directly attributed to this system is showing a very satisfactory increase from month to month.

Brown

Telephone Societies

The Telephone Society of Pittsburg

Carnegie Auditorium, North Side.
February 17.

Speaker: Herbert N. Casson.
Subject: "The Wonders of the Telephone Business."

The Spare Pair Society

1414 Arch Street, Philadelphia.
February 15.

Speaker: C. L. Meixel, Plant Statistician.
Subject: "Scientific Organization."

Atlantic Telephone Society

14 South New York Ave., Atlantic City.
February 21.

Speaker: C. B. Smith, District Manager.
Subject: "Some Telephone Prospects."

Reading Plant School

Church Street.
February 21.

Subject: Maintenance Rules.
Reader: W. A. Fegley.
Comments by Messrs. Springer, Hasskarl, Laird, Gaul, Lewis and Levengood.

The Transposition Club

Hotel Henry, Pittsburg.
February 21.

The Cross Talk Club

Kugler's Restaurant, Philadelphia.
February 20.
Speaker: P. C. Staples, Publicity Manager.

West Philadelphia Telephone Society

Lancaster Ave., below Fifty-second Street.
February 21.
The second annual banquet will be held.

The Bell Club of Germantown

26 West Chester Ave., Phila.
February 28.
Speaker: C. L. Meixel, Plant Statistician.
Subject: "Scientific Organization."

Norristown Telephone Society

401 DeKalb Street.
February 28.
Speaker: G. D. Heald, Plant Engineer, Eastern Division.
Subject: "Specifications No. 3290."

The P. C. T. Club.

216 E. State St., Trenton, N. J.
February 23.
Speaker: T. H. Smith, Plant Wire Chief, Princeton.
Subject: "Plant Conditions in Princeton."
The P. C. T. Club held its monthly meeting January 28, in the office of the Plant Supervisor. The meeting throughout was one of great interest, due to the practical subjects discussed. The papers consisted of articles on Ring Wiring, by J. Ferguson; Cables, by F. Sisti; Setting

Poles, by C. Barnes, and The Running of Loops, by A. Sheets. Each paper was written by a man directly connected with the work in hand. The articles on Loops was followed by a few illustrations of the different ties made in every-day work, the apparatus being installed in the store-room.

The Telephone Society of Baltimore.

5 Light Street.
March 1.

Speaker: B. Stryker, Plant Superintendent, Western.
Subject: "Art and Science in Plant Work."
A banquet will be held that evening.

The Telephone Society of Washington.

At the last meeting of The Washington Telephone Society, which was held February 1, the address of the evening was made by C. J. Blanchard, Statistician of the Reclamation Service. Mr. Blanchard's talk, which was on the subject of the work done by his service and that of the Agriculture Department in the reclamation of the great Western deserts, was illustrated by about three hundred stereopticon views. His talk was interesting and decidedly instructive.

Washington Division

R. G. HUNT, Division Correspondent

A Washington salesman called on a subscriber in reference to a denied service bill. The subscriber was very angry at first and wanted the telephone removed immediately. He was finally satisfied, however, the bill was collected and a "bold type listing" was sold in addition. The time consumed was 45 minutes.

The Chevy Chase Club, of Washington, D. C., is building a splendid new club house on its grounds adjoining the present building. It is expected that the change of quarters will take place within a month. At the present time this club has a switchboard with 8 stations. The equipment for the new building will consist of a switchboard and 24 stations.

Another letter, from a patron who found Washington toll and local service worthy of commendation, is printed in part.

"I wish to congratulate you on the excellent telephone service in Washington. During the past three or four years I have had occasion to use sometimes as often as fifty times a day the telephone in the cities along the Atlantic Coast, and I believe that Washington gives the most prompt and satisfactory service of any of the cities I have visited."

Stationery Notes.

When an office in one department has exhausted its stock of blank requisition forms it has been the practice in some localities for one department to obtain a blank form intended for another department's use and to change the code letter. For example, if Bellsville Commercial Department allowed its stock of forms to become exhausted and then borrowed a Plant form 26P, changing the code letter P to I, the result would be a duplication of requisition 26I.

New Code Letter for Sign

In the February 1 issue of THE TELEPHONE NEWS the code letter "G" was assigned to the new decalcomania sign reading BELL TELEPHONE BOOTHS. This code letter has been CHANGED TO "H" in order to avoid conflict with the porcelain sign for wagons.

Baltimore Division

J. C. STACK, Division Correspondent

Through the agency of an extension station in a maid's room on the third floor of a Walbrook residence, the absent members of the family were summoned and an attempted burglary prevented. Nothing was taken but a bank belonging to the children.

The following is a letter of appreciation from the Agent of the Dealtown Rural Telephone Company, in answer to a "Thank You Card" sent with a receipted bill:

"DEAR SIR:—You ask if we are satisfied with our telephone service. I must say that we are all well pleased with the treatment we receive from the Company and its employees. Our line works perfectly. Fair or foul weather doesn't make a difference. Those of us who felt as though we would not profit much by it would not be without it now."

The *Baltimore Sun* comments, in its issue of January 27, on the feat accomplished by The Chesapeake and Potomac Company in moving trunk line telephone poles to new locations without disturbing the wires attached thereto. The process is described in detail, and the Company is commended for its enterprise in handling the operation without interruption to service.

The same paper gives considerable space in the February 3 issue to the use of the telephone in canvassing the city of Baltimore in behalf of an amateur theatrical production. The cast of the production includes 720 persons and each is assigned a certain portion of the subscribers listed in the Company's local list, and is instructed to solicit by telephone everyone so listed.

The *Frederick* (Md.) *News* makes editorial note of the improvement in the appearance of the city's streets brought about through the removal, by The C. & P. Company, of poles and wires.

The Additional Service

Since the movement is so broad in scope it seems pertinent to add a few more commentary words to those which have been circulated of late on the subject of joint Telephone-Telegraph service.

The fact that the home, office or store which is "telephoned" is now "telegraphed" should prove an argument of considerable value to the Company's salesmen. The terms of General Instructions No. 4, containing the details of the arrangement by which the cooperating companies will work, are of a nature that would seem to call for general approval from the telephone-using public. [Suggestions for better operating and accounting methods, it may be said in passing, will be welcomed by the officials of the combined companies. They should be forwarded through the regular channels.] The scheme as it stands is constructive throughout. Practically no conditions or restrictions are noticeable, and, on the other hand, a number of new privileges and conveniences are offered to telephone and telegraph patrons. Further, it is worthy of note that, without a doubt, the innovation marks the beginning of a well-defined epoch in the field of long distance communication.

An announcement of interest to telephone men generally is that circulated by the Associated Press, stating that a new 25-story telephone building, the largest and most complete building of its kind in the world, is soon to be built by the New York Telephone Company in Lower Manhattan.

Pittsburg Division**L. W. GRISWOLD, Division Correspondent**

Pittsburg District. It frequently occurs that employees of the Pittsburg Division have need for books relating to telephone practice. In the Carnegie Library of Pittsburg there are many books, magazine articles and booklets bearing on telephone work. Some of these are contained in the following list:

Abbott; "Telephony." This work was published in 1905 and is in three volumes. It is a manual of the design, construction and operation of telephone exchanges.



Traders Hotel, Clarksburg, W. Va., which burned January 20.

Casson; "History of the Telephone." This volume is dated 1910 and is by a man familiar to all telephone employees.

International Correspondence Schools, Scranton, Pa.; Text-books on Telephony. The subjects treated in these volumes are automatic telephone systems, house telephones, testing of telephone circuits, telephone line construction, telephone cables, and power equipment. Published in 1907. Another book from the same source is "Principles of Telephony," 1907.

Moyer; Telephone construction methods and cost is the general line dwelt upon by this author. The book contains detailed directions for analyzing and recording the costs of outside construction.

Miller; "American Telephone Practice." Issued in 1905.

Poole; A practical telephone handbook and guide to the telephonic exchange. This book is confined to British practice.

Tutt; "Telephone Accounting." This book was published in 1909 and contains practical points designed to help the accountant.

Van De Venter; "Telephonology." This is an up-to-date description of modern telephone apparatus. It is intended for the practical telephone man.

Occasionally a smile may be drawn from the newspaper items of decidedly local interest. The following is a case in point:

"Springhill.—A telephone company has been formed in *Cheat Neck* with Milton McCormick, of *Fairchance*, as the chief promoter. *Skide* Baker is president and Thomas Adams is secretary. The line starts near old *Zion church* and traverses the road to *Cheat Haven*, and it is to be continued on to Point Marion and connect with Bell 'phone exchange at that place."—*Uniontown Standard*, January 20, 1911.

Not long ago a subscriber appeared at the

Down Town office with a desk set under his arm. The counter man looked surprised when the man deposited his burden and asked for the manager. The manager was called from his office.

"You will have to send a man up to my new place to fix this," said the subscriber, who held the desk set at arm's length. "I am moving," he further explained. Then he glanced at the desk set. "I took it out all right, but when I went to put it in the new house, there was nothing to fasten the cords to." Then the man told how he had thought that it might save inconvenience if the desk set were moved by him without notifying the Company. A trip through one of the city exchanges convinced the subscriber that if all patrons took it upon themselves to move their telephones, disastrous results would surely follow.

The Company's standard desks, chairs and tables are now carried in stock by the J. G. Marshall Co., Fulton Building, Pittsburg, for use in that Division.

It frequently happens that it is necessary to make requests for the payment of bills for telephone rental over the telephone. Most of the conversations of this type flavor of routine, but one took place in the Down Town office the other day which made an impression on the mind of the man who was attempting to do the collecting. The man who owed the money was a traveling salesman, so in order to reach him by telephone it was necessary for the collector to call up the residence.

"No, Mr. Smith is not at home," said a pleasant voice.

"Well," replied the collector, "this is The Bell Telephone Company and I would like to talk to him in regard to an account."

"Oh, you want money, do you?" said the pleasant person.

"Well, perhaps you can get him at Grant —. And by the way, I have been trying to get ten dollars for two weeks to buy some little presents. When you get him, tell him about it and see if you can't get a little for me while you are endeavoring to make him settle with your Company."

Butler District. Traffic arrangements have been made with the following rural companies to be connected with the Port Alleghany Exchange:

Stations.

Grimes District.....	10
Portage Valley	9
The Rock Run	15

Brass signs are being placed on the Company's owned and rented buildings in the Butler District. Two direct lines and three extension stations have been installed in the Barracks of the State Constabulary. The troops were recently moved to Butler from Punxsutawney, Pa. Twenty-five subscribers have been added to the Butler exchange as a result of the troops coming to this city.

The first of The Central District & Printing Telegraph Company's directories to be distributed among the subscribers of the Bradford, Pa., and Warren, Pa., exchanges, were given out during the latter part of January.

Stewart

Uniontown District. The most venerable building in Clarksburg, W. Va., was destroyed by fire January 20. It was a spectacular blaze that aroused the whole city, but aside from that, employees of Pittsburg Division figured in the affair in a way that shows how men can rise to the occasion at all times.

This fire started early in the evening and was soon beyond the control of Clarksburg's fire department. A private branch exchange switchboard and 8 stations in addition to two public telephones with booths were installed in the hotel.

The Pittsburg lead and numerous cables used in carrying the Clarksburg business, pass close to the hotel. Owing to these facts, quick action was necessary if the telephone company's property was to be saved.

Wire Chief Johnson and his assistant, Thomas Wright, both of Clarksburg, went into the burning building and dragged the switchboard to safety. Both of the wall sets and also the booths were saved.

In the meantime, Plant Supervisor Heuring, of Fairmont, W. Va., had been notified. A special trolley car, upon which had been loaded telephone equipment and fire fighting apparatus, was sent to Clarksburg, the run of 36 miles being made in 55 minutes. It was realized that if the cables in front of the hotel parted disaster would result, so a stream of water was played on them continually.

The next day walls of the destroyed building stood in such a manner that a slight wind would blow them into the street. Telephone employees razed the walls and this aid was greatly appreciated by the Clarksburg village officials.

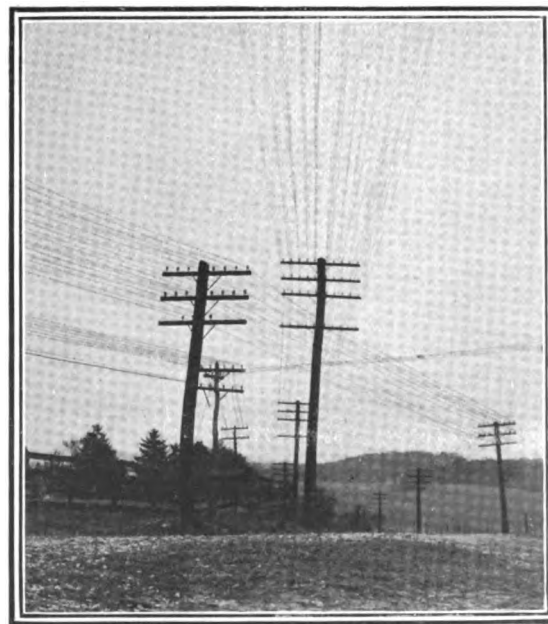
It has already been planned to build a hotel on the "Trader's" site, and the proprietor has signed an application for 2 trunks and 30 stations.

Our Company has purchased a lot 35 x 90 feet on the main street in Clarksburg, W. Va., on which it is expected that a telephone building will be erected.

Complete rights-of-way have just been secured for a line from West Newton, Pa., to Bell's Mills, Pa., a distance of five miles. Twenty applications have already been obtained from farmers to be served by this line.

A Washington, Pa., salesman was informed by a prospective subscriber that she expected to be married in about a week, and that she would like to have a telephone installed in her husband's name so that he would surely be listed in the new directory. The salesman asked for a note to her fiancé, and armed with this he had no difficulty in obtaining an application for service. The tolls from this station averaged 85 cents per day for the first five days.

The Horner-Gaylord Company, wholesale grocers at Clarksburg, W. Va., have signed an application for No. 2 P. B. X. service, with 3 trunks and 8 stations.

Cahoon

Three Pole Lines in Our Ohio Territory at a Cross-Roads on the National Pike, Built About 1820 (Four Cross-arms) A. T. & T. Co., New York to St. Louis (Three " ") Western Union Telegraph Co. (Two " ") Morristown Telephone Company—a Sublicense Company

(Continued from Page 1.)

Under "F" should be given the name of the prospect, his occupation and also his business address. If the prospect is a business concern,

then the address will be inserted under "B" and it is not necessary to repeat it.

The space "G" is provided for the name of the person interviewed. This name is very essential, since it enables the salesman to ask for a particular person when making a second call. In this way, not only making an impression, but the necessity for repeating the salesman's story is obviated. In obtaining names for subscribers' cards, it is imperative that the Christian name and the middle initial, if there is one, be obtained.

"H," Bell service. If the prospect is a subscriber the class of service should be given here. If the prospect is not a Bell subscriber then the name of the service used should be inserted.

Question "I," "Opposition Service." This should be answered "Yes" or "No," unless the salesman is able to insert the actual rates paid for the quality of service used.

On the line "J" should be indicated the subscriber's credit. There is no better way in which a salesman can show his capacity for his undertaking than in the matter of credit extension. When there is doubt as to the ability of a prospect to pay for telephone service, an advance payment should be secured. Payment for two or three months in advance is not unreasonable in cases of doubtful credit. The question of how to secure the information necessary to determine a prospect's credit depends largely on the tact and initiative possessed by the salesman. One of the best tests for a salesman to use in cases of this kind is as follows: He should imagine himself in the Company's position. He should assume that it is he who is making the necessary outlay for furnishing the telephone service and then, if he is willing to take such a risk as he is asking the Company to shoulder, the prospect's credit is probably good.

Under the caption "K," "Remarks," should be stated any additional information that the salesman thinks necessary for the completion of the card record. On this line it would be proper to name the occupation of the prospect, his reputation in the community, etc.

On the line "L" should be given the average amount spent for toll calls per month. If the prospect is a new subscriber, then "new" should be clipped from the upper right hand corner of the card. If he is an old subscriber, then the abbreviation for superseding in the same corner of the card should be cut out.

Building Up the Card Record

In building up the card record salesmen who are engaged on the work should turn in sufficient cards to complete the job within a reasonable time. Each card should represent an interview with the prospect. Upon a new prospect's card should be clearly indicated the date on which a follow-up call should be made. After each call, a concise statement should be written on the back of the card, and the information given should tell whether or not there is an immediate possibility for the sale of telephone service or directory advertising.

Results From This Method of Record Building

This method of building a record is of advantage to the salesman in two ways. First—It gives him a never exhausting supply of prospects. Second—It provides for a definite day's work. There are no times when the prospects for a telephone sale are entirely exhausted, and each day the salesman has a certain number of definite calls to make and specific persons to interview. Many salesmen form the habit of developing a few prospects and then proceeding to work on them to the exclusion of a large

number of possible purchasers of telephone service. When the few prospect cards on which the salesman is concentrating his efforts become exhausted, then he finds himself high and dry without a possible buyer to come to his rescue. But there are other advantages in the card record system. From the Company's point of view there is the surety that the salesman will be employed during the working day. The Company necessarily depends largely upon the salesman himself when it comes to the time spent in actual work and the persistency with which new prospects are being interviewed.

From this card system the Company is always in a good position to gage the class of work being done by the salesman. Each morning the salesmen are given a list of the prospects to be interviewed during the day, and in addition, each man is handed a supply of cards, upon which definite information in regard to a follow-up call has been indicated. It should be understood that the card record was not designed for the keeping of tabs on salesmen, but as a means to assist them in building up a patronage and maintaining it when the people in a community have learned to depend upon employees for the furnishing of telephone service.

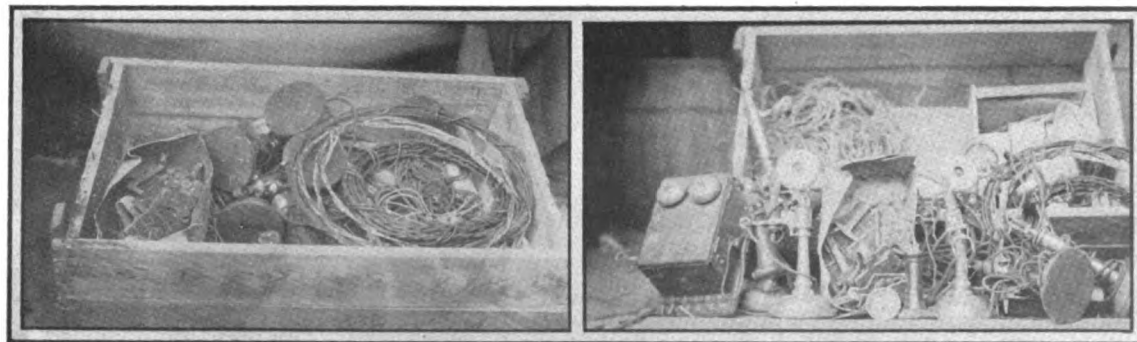
One great mistake is often made by salesmen, and it consists in selling service unsuited to the needs of the prospect. Judgment intelligently exercised by the salesman should be the determining factor in this instance. A salesman should size up his prospect (business or residence), his ability to pay for what he gets, and the apparent need for telephone service, of the sort requested. He should then prevail upon the prospect to take a grade of service that will economically meet his needs. It is to the interest of the Company to furnish the highest grade of service (viz., direct line) at the lowest possible rate in order to free subscribers from the annoyance of having other people on their lines. It is a real economy for the business man to take direct line service when possible and avoid the annoyance of being served with several persons who wish to use the telephone at the same time. Cheapness is an easy argument for selling, and the salesman often allows the prospect to take a "cheaper" grade of service, when at a slight increase in cost a much more satisfactory subscriber would result. Salesmen

should not follow the course of least resistance, but should make every effort to sell the service that will produce a satisfactory subscriber.

There are other advantages to be derived from the sale of the most efficient grade of service. If a prospect takes a low grade of service, it is only a question of time before he will find the cheap grade inadequate, and change to the higher one. The subscriber could have been saved from much annoyance and the Company spared considerable outlay if the prospect had been started out properly by the salesman. Such changes often involve a change in the telephone number, and therefore this should always be avoided. It is equally poor judgment for a salesman to oversell a subscriber. When a prospect is signed for equipment too elaborate for his needs, dissatisfaction is bound to result. The disadvantages in such a sale are mostly on the side of the Company. It costs much money to install telephone equipment and it frequently happens that subscribers are induced to take higher priced service when modest equipment would meet the patron's needs. Some day the oversold subscriber will realize his position and insist upon a less expensive class of service as better suited to his requirements.

Of the two evils, underselling is much the graver and the one which we most frequently encounter. The underselling evil applies particularly in the case of additional equipment, such as a private branch exchange. From an installation standpoint it does not cost much more for a direct line than for four-party service, so that little danger will result from overselling direct lines.

This method of recording prospects for salesmen is the greatest aid that the Company can give to men starting in the business. The salesmen must furnish the prospects, but the Company undertakes to keep them properly recorded and return each one to the salesman at the proper time. No salesman who neglects this modern method and sticks to the old haphazard way can hope to be successful. There is nothing that requires a more definite or systematic method than the selling of telephone service. This card-record method is of known value, and because it has been tested and proved sound the Company will not be satisfied until it has a complete index of each prospect in every community.



Goods Shipped to Class C Stock

It is unfortunate that some of those who ship material to the Western Electric Company for Class "C" stock have not only failed to observe the regulations and orders but have not noticed a recent article on the subject in THE TELEPHONE NEWS.

In a box recently received there were the following miscellaneous pieces of equipment:

- | | | |
|--------------------|--------------------------------|--------------------------|
| 1—21a sub set. | 45—No. 2001 H. R. mouthpieces. | 8—B. T. battery couples. |
| 5—20 P. D. stands. | 6—229 transmitters. | 17 lbs. S. C. wire. |
| 4—10 " " " | 3—12a fuses. | 2 " W. P. copper wire. |
| 5 lbs. junk cords. | 6—No. 1 gongs. | 8—122 receivers. |
| 3—7 ft. 347 cords. | 4—16 " " | 1—259 transmitter. |
| 13—110 plugs. | | |

Two of the receivers and two transmitters were left attached to the P. D. stands. Seven plugs were left attached to cords.

Philadelphia Division

R. C. MASON, Division Correspondent

Down Town District. "The Personal Touch," an advertising talk on the use of the telephone in getting customers, has been issued in folder form and in the near future will be distributed throughout the Company's territory. The subject matter is from the pen of William C. Freeman, an advertising expert, and is in the writer's characteristically terse, to-the-point style. The original appeared in the Philadelphia *North American*.

A subscriber in the Down Town District was evidently well pleased at receiving the Company's card acknowledging a remittance and requesting criticism of service. He returned the card with the following notation:

"Your generous offer disarms criticism. I have nothing to complain of, but, instead I congratulate the Company upon its excellent service."

A confused applicant for a position stated at the top of the blank that he was born in 1890. Several lines below, where his school record was requested, he wrote, "Entered school in 1888."

Automatic public telephone collectors in Philadelphia are being equipped with pocket electric flashlights to aid them in counting coins at stations located in poorly lighted places. Two types are being considered for final adoption, the flat type and the cylindrical.

The first Telegraph-Telephone Joint Office, Class "A," in the territory of our combined companies, has been established on the ground floor of 1230 Arch Street, Philadelphia. This is in accordance with the newly issued General Instructions No. 4, Series of 1911.

The management of the Adelphi Theatre has added a new feature to its ticket-selling system in that tickets ordered by telephone are now delivered by motor-cycle.

Gaul

Germantown District. A Germantown druggist inquired if the Company would not furnish him with a standard black desk set, in place of the one he now has. Inspection developed the rather startling fact that the gentleman was so desirous of having a black instrument that he had treated the former nicked set with a liberal coating of stove enamel. The general effect was not entirely creditable to the Company.

Another pharmacist in the same neighborhood found it necessary to shorten the conversations that certain of his feminine patrons were in the habit of holding. This was very effectually accomplished by the judicious use of a steel spatula in contact with the lightning arrester. The resulting noises almost invariably made the patrons think that some one else wanted to use the line. They then hurriedly ended their conversations.

McKnight

West Philadelphia District. After other attempts had been made, a West Philadelphia representative called a prominent broker at his office and in a polite manner informed him that his residence telephone was on the list for temporary disconnection, and that our account must have been overlooked. The impression made by the Company's collector is shown in the following letter:

CASHIER,

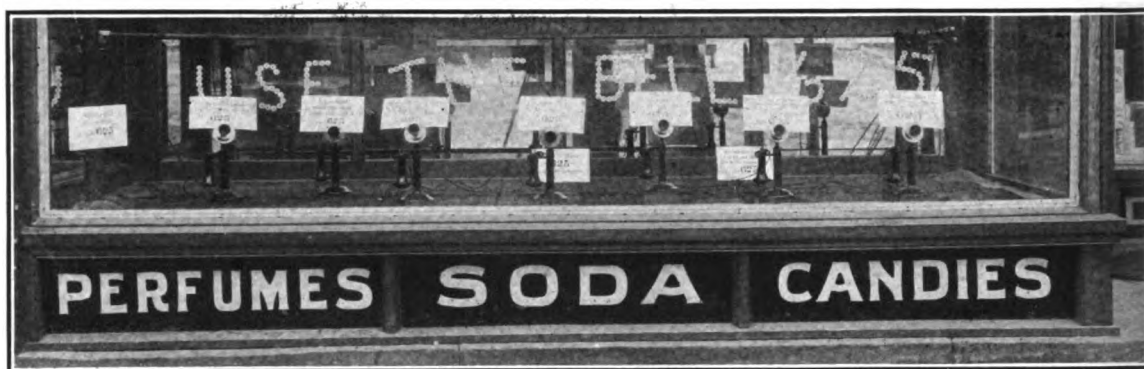
THE BELL TELEPHONE COMPANY OF PENNSYLVANIA,
West Philadelphia, Penna.

Dear Sir:—Enclosed please find check for \$7.50, as per telephone to-day. I thank you for your courtesy in calling my attention to this matter, as I had overlooked it.

Thanking you again, for I appreciate being notified instead of being cut off, I am

Yours very truly,

Bissex



Window of a Pottsville, Pa., (Norristown District) Drug Store—A Result of Cooperation

1910 Population of Philadelphia
by Wards

The Philadelphia *Telegraph* prints a statement of that city's population by wards, that may be of interest and use to readers of THE TELEPHONE NEWS. It is here given:

First	47,712
Second	40,536
Third	25,747
Fourth	22,316
Fifth	17,006
Sixth	6,374
Seventh	27,425
Eighth	13,965
Ninth	5,071
Tenth	19,426
Eleventh	11,619
Twelfth	15,152
Thirteenth	19,769
Fourteenth	19,477
Fifteenth	47,273
Sixteenth	16,175
Seventeenth	17,484
Eighteenth	27,134
Nineteenth	52,283
Twentieth	45,356
Twenty-first	35,406
Twenty-second	70,245
Twenty-third	32,133
Twenty-fourth	54,681
Twenty-fifth	42,510
Twenty-sixth	54,842
Twenty-seventh	24,255
Twenty-eighth	49,242
Twenty-ninth	30,217
Thirtieth	29,209
Thirty-first	30,863
Thirty-second	40,293
Thirty-third	51,769
Thirty-fourth	49,575
Thirty-fifth	10,484
Thirty-sixth	61,379
Thirty-seventh	23,110
Thirty-eighth	48,939
Thirty-ninth	54,393
Fortieth	41,820
Forty-first	15,640
Forty-second	23,610
Forty-third	43,260
Forty-fourth	39,138
Forty-fifth	26,234
Forty-sixth	38,459
Forty-seventh	30,002
Total	1,549,008

Norristown District. An interesting window exhibit was that recently shown in the window of a prominent Pottstown pharmacy. The display consisted of "Bell" desk sets, each of which bore an appropriately inscribed card telling how the telephone might be utilized in purchasing at that particular store. The words "Use the Bell 625" formed by our standard gummed seal labels appeared on the mirror in the background. The suggestion was made by our local representatives.

The Royersford *Weekly Advertiser*, for January 27, contained an article on the "almost incredible" increase of "Bell" subscribers in the Royersford exchange district. There are now more than 500 subscribers in this exchange area.

Reerer

Organization Changes

T. R. F. Peyton, formerly Chief Clerk in the Down Town District Manager's office, Philadelphia, has been transferred to the Commercial Manager's office, to have charge of the systematic study of commercial telephony.

F. W. Gendall, formerly a sublicense and rural line salesman on the Reading field force, has been transferred to the Harrisburg field force.

C. Vanderslice, of the Reading Plant force, has been promoted from the position of Cable Helper to that of Cable Splicer.

C. W. Behmer, of the Altoona Plant force, has been promoted to the position of Cable Splicer.

E. Kilhafner, formerly Supervisor's clerk at Reading, has been appointed District Chief Clerk at Harrisburg.

W. Herbert, of the Harrisburg Plant force, has been promoted from Climber to Gang Foreman.

W. H. Gardner, formerly Cable Splicer at Williamsport, has been appointed Cable Foreman at Harrisburg.

W. E. Humphreys has been appointed Supervisor of Supplies at Washington, D. C.

J. R. Clements has been appointed Local manager of the Indiana Sub-District, reporting to the Greensburg District Manager.

William Hazeltine, formerly Toll Traffic Chief, Pittsburg, has been appointed Chief Clerk to the Pittsburg Traffic Supervisor.

G. F. Brown, formerly Traffic Chief, Court Exchange, has been transferred to Traffic Chief, Pittsburg Toll.

H. Black, formerly Assistant Traffic Chief, Cedar District, has been appointed Traffic Chief, Cedar District.

F. P. Peevish, formerly Chief Clerk to the Pittsburg Traffic Supervisor, has been appointed Traffic Chief, Hill District.

The following changes in the organization in Division No. 2, of the A. T. and T. Company became effective February 1, 1911:

T. P. White, Traffic Engineering Assistant, General Office, New York, transferred to Supervisor of Traffic, Division No. 2, Philadelphia.

J. D. Ball, Chief Clerk, Division Office, Philadelphia, transferred to Southern Bell Telephone and Telegraph Company.

C. W. Hadlock, Clerk in the office of the Division Superintendent of Traffic, Philadelphia, promoted to Chief Clerk, Division Office, Philadelphia.

A. D. J. Gillen, Clerk in the office of the District Traffic Chief, Philadelphia, transferred to Clerk in the office of the Division Superintendent of Traffic, Philadelphia.

H. J. Barber, Assistant Traffic Chief, Baltimore, Md., transferred to Assistant Traffic Chief, Reading, reporting to E. J. Padmore, District Traffic Chief, Philadelphia.

THE TELEPHONE NEWS

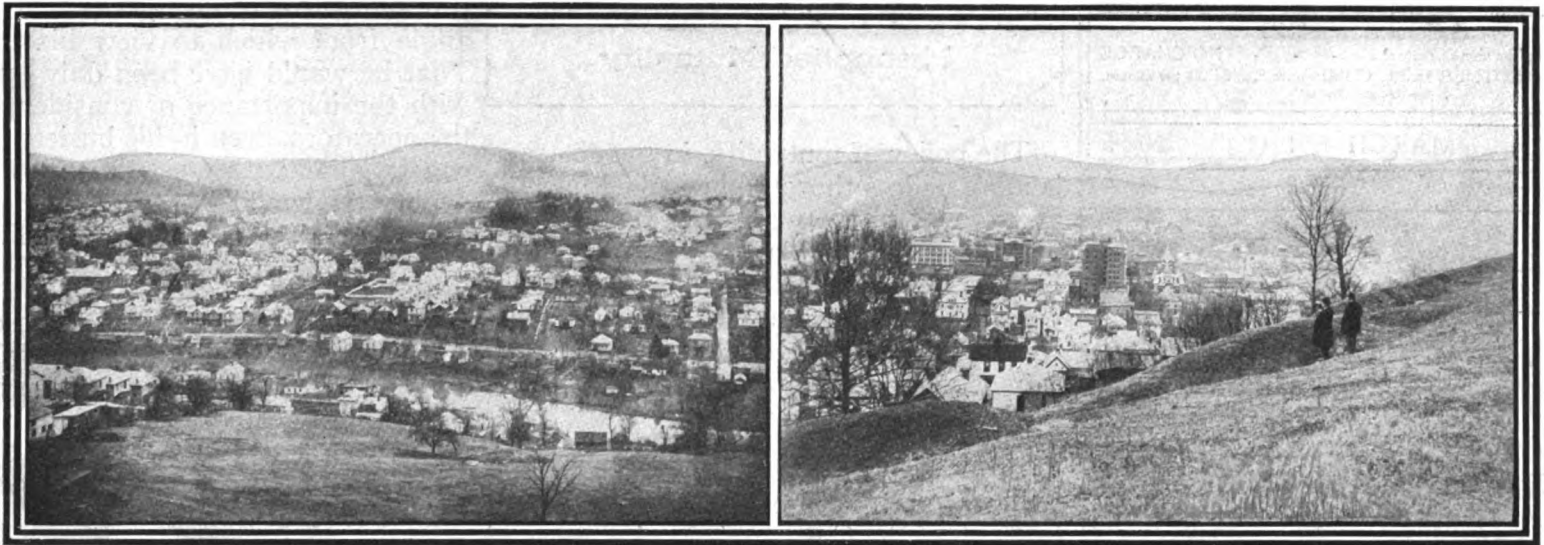


VOL. VII

PHILADELPHIA, PA.

MARCH 1, 1911

NO. 5



Clarksburg, West Virginia, in the Southwestern Section of Our Company's Territory

Two views from Lowade's Hill, showing residences and new business houses. The trenches in the foreground at the right are rifle pits, thrown up by the Seventh and Tenth Indiana Infantries when they visited Clarksburg at the time of the Civil War. The majority of the buildings at the left have been built within four years

Traffic Engineering

Address by S. E. Gill, Traffic Superintendent Harrisburg Division, Before The Philadelphia Telephone Society, February 14

MR. PRESIDENT and Fellow Members of the Philadelphia Telephone Society: In reading this paper on Traffic Engineering it is my intention not so much to go into the manner and methods of doing this work, but rather to show the necessity for it and what it is hoped to accomplish. I will not attempt to show comparisons of data compiled to prove savings or increased efficiency.

The Companies have a centralized corps of Engineers capable of determining standard, efficient and economical apparatus; Engineers who can design our buildings and locate the switchboards and apparatus in them; Engineers who can design our outside plant and who can determine whether cable or open lines are most economical to construct and maintain, and Engineers who can solve the problems of transmission.

The necessary operating equipment has in the past been furnished from plans and specifications made by these various centralized Engineers from such information and data as they could gather from the Local Representatives in the communities where facilities were to be provided. This information was usually obtained when reports showed that spare equipment was nearly exhausted, or when the Local Representatives, finding themselves handicapped by congestion, would call for additional facilities.

(Continued on page 3)

CLARKSBURG, WEST VIRGINIA



CLARKSBURG, W. VA., lies on the frontier of the territory of The Bell Telephone Company of Pennsylvania and Associated Companies. According to the census, Clarksburg has about 9,000 inhabitants, whose houses are scattered among gas wells and coal mines. A visit to the city brings out a different story. To begin with, it is said that within one and one-third miles of the Clarksburg Court House at least 23,000 people are living. The secretary of the Clarksburg Board of Trade backed up this statement by saying that it has been fifty years since the corporate limits of the city have been enlarged. In the meantime not less than 25 boroughs and additions have been laid out and developed. It is largely in these additions that the bulk of the population lives. The size of the town is indeed striking, but no more so than the enthusiasm of the townspeople. That Clarksburg is experiencing an extremely rapid expansion anyone who has seen the city must admit. In order to become convinced of the permanency of this growth one has simply to ask a few questions of the first business man he encounters.

If cheap fuel has anything to do with the attractiveness of a locality in the eyes of the manufacturer, then nothing can stop scores of concerns from choosing Clarksburg as a permanent home. Every day more than one billion feet of natural gas arises from the wells within a 25-mile radius of Clarksburg. The gas is sold to manufacturers at the rate of four cents a thou-

(Continued on Page 6)

The Wonders of the Telephone Business

Address Delivered February 17 Before The Telephone Society of Pittsburg, by Herbert N. Casson, Author of "The History of the Telephone"

WHEN Herbert N. Casson entered the Carnegie Auditorium, North Side, Pittsburg, February 17, there were about 400 members and guests on hand to greet him. Among them were a number of members of the Pittsburg Chamber of Commerce, former President of The C. D. & P. Telegraph Company, D. Leet Wilson; Mr. Stevens, Special Agent Central Union Telephone Company, and other representatives from Harrisburg and Philadelphia.

The society's President, Z. C. Gillespie, Sub-license Agent, in introducing the speaker, said, in part:

"The telephone business has grown so fast that it ran along for several decades without knowing that it had a history. Suddenly it was surprised to know that it had one, and, strange to say, it required an outsider to show us what an interesting history it is. The speaker to-night has written other histories, but none of more interest than that of the telephone industry."

Mr. Casson said, in part:

Mr. President, members and guests of The Telephone Society of Pittsburg: I hardly know whether I am an outsider or an insider in the telephone business. I used to think that I was a private wire; now I begin to think that I must be a loaded line. I have been so caught by the

(Continued on page 8)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telephone & Telegraph Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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W. S. PRIOR, Secretary and Treasurer M. H. BURKH, Auditor
L. H. KINNARD, Commercial Manager W. R. DRIVER Jr., Traffic Manager
J. C. NOWELL, Plant Manager N. HAYWARD, Chief Engineer
P. C. STAPLES, Publicity Manager

Managing Editor, E. H. HAVENS, 1220 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies NO CHARGE
To employees of OTHER BELL COMPANIES \$1.50 per annum,
payable in advance

Vol. VII MARCH 1, 1911 No. 5

"Be Capable And Look It."

"WHAT is your recipe for success?" was the interesting question hurled at a well-known business man. "Don't give me the usual platitudes," the questioner added; "the air is full of them. Tell me something you yourself have tried out and found of value, preferably something not usually mentioned."

The interrogated one waited a long time before answering. Finally he volunteered this:

"You have set me a real task. Men frequently ask a successful man how he did it, but they seldom get anything definite in reply. I have in mind a thought, however, that, when linked with one of those platitudes you speak of, makes a rather unusual combination. To me it has proved valuable.

"First of all, say—be capable of doing things. Big things, little things, things for which you were hired and things for which you don't get a cent of money or a pennyworth of credit. A mere truism, I admit. But listen: I believe it is vitally important to *appear capable*. Cavil if you will, I want to tell you that no matter how extensive a man's abilities and capabilities are, they frequently go for naught, or at least fail of their ultimate expression, by reason of the fact that the man lives in a weak atmosphere. Have you never noticed that really strong men radiate strength? That is what I mean. Everyone has within him the potentialities of a wireless sending station, and his radius is limited only by the extent to which he cultivates and stores up the quality of which I am speaking.

"Understand me, I am not referring to the shape of collar the man wears, nor the color of his hose. These details should govern themselves. Nor do I urge the thin man to cultivate impressive avoirdupois, the short man height, or the homely man good looks. Worthy as these ambitions may be, I mean something bigger. Perhaps I can make my meaning clearest by saying—get the power to do, and then, without forcing it on their attention, make others feel you have that power."

Misapplied Mutuality

The policy of mutuality, in the abstract, is more or less thoroughly soaked into the average telephone man. He realizes that his company looms large or small in public favor in direct ratio with the esteem in which the officials and employees are held. In concrete instances, however, as much cannot always be said. Witness the following:

A generous user of toll service stepped into one of the Company's local offices and complained of certain annoyances he was experiencing, saying, "I pay you people a great deal of money for long-distance messages. As a rule I get my money's worth; but of late I've been bothered by the operators not getting my calls accurately. They come back at me two or three times for the name of the person I am calling and sometimes get the wrong people after all. The worst of it is these things usually happen just *when I'm busiest*."

The young man behind the counter pondered a moment and then replied, "Why, that's too bad, Mr. Jones. I'll tell you frankly, we have had a number of similar complaints lately and I think you are justified in speaking of it. I shall get after the Chief Operator at once and see if something can't be done."

Whether the young man stopped pondering a moment too soon, or whether he was plainly ignorant in matters pertaining to the handling of toll traffic, is irrelevant. The point is, he made a mistake. His shot at mutuality missed fire. What should have been done is something like this. He should have sensed a clue to the situation in the words, "when I'm busiest." That meant, most likely, that the subscriber snapped out his calls in a manner hard to understand, making it difficult for the operators to catch the names, ad-

resses, and so on. And further, and of even greater importance, it meant that when he was rushed the operating force, in all probability, was in the throes of handling the daily traffic peak.

These two points should have been thoroughly exposed, and with a show of personal interest the customer should have been led into the switch room; there to see for himself what it means to locate ANY-ONE, ANYTIME, ANYWHERE. Such procedure would have given him the true angle from which to view his difficulty. That he would have been duly impressed with the importance of consideration for the operators, even in his busiest hour, no one familiar with operating methods can doubt. It would have meant a concrete case of real mutuality aptly applied.

All of this leads naturally to a query—wouldn't it be decidedly worth while for every employee at a point of contact with the public to take on himself the task of learning at least the A, B, C's of the operating room? It seems trite to say one cannot explain how things happen unless one knows.

Extraordinary Methods

HAVING in mind recent remarkable developments in the selling of toll service to department stores, it seems pertinent to say a word concerning extraordinary methods in general.

When one calls a thing "extraordinary" something closely correlated with originality is meant. In fact, the closer the kinship the better. The matter is really worth attention, when one comes to think of it; for, among ordinary people such as most of us are, there is a strong tendency to stick to beaten paths. We are prone to *remain* ordinary. It is so much easier—and therein lies danger. It is just as true to-day as ever that persons and things seek lines of least resistance. To get out of the common rut! That is the problem.

No worth-while deed was ever done in ordinary fashion. Bear that in mind. Whether it be the crossing of Alpine barriers or the closing of the first "leased toll circuit" deal, it always required, and always does require, initiative, originality, disregard of precedent and defiance of custom. It is worth real money to a salesman to learn to be commercially unconventional.

Traffic Engineering

(Continued from Page 1)

This method of providing equipment could not be entirely satisfactory. It was unsatisfactory in that it did not look far enough ahead. There were congested conditions, rush jobs, various methods, many departures from general standards (thought necessary by individual representatives), and in many cases equipment omitted that was required by special conditions.

Our present scheme of organization was decided upon whereby there would be Engineers, both Plant and Traffic, out in the field attached to each Division.

These Engineers gather data relative to the Division and are familiar with local conditions. They must know the Commercial Department's plans and estimates and the Traffic Department's plans for handling the business.

They work up their studies and recommendations in such form that they can be presented to the Centralized Engineers, who pass upon them as judges.

I will deal only with the work of the field, or Division Traffic Engineer, in a territory similar to the Harrisburg Division, and eliminating large multi-office cities, and try to show what his responsibilities are.

We might divide them under 5 headings and briefly say he is responsible

- 1st. For requests for all additions to or changes in central office equipment (this does not include additions to power plant or other terminal room equipment, but includes all changes and additions in the operating room and operators' quarters).
- 2d. For requests for all additional toll lines.
- 3d. For requests for all additional inter-office trunks.
- 4th. For an estimate made in the late summer of each year, of the requirements for central office equipment, toll lines and inter-office trunks for the following calendar year to be used as a basis for the annual estimate.
- 5th. For the proper use of existing toll and central office plant, such as arrangement of toll lines, routing of toll calls, arrangement of switchboard equipment to obtain highest efficiency, proper operating methods, etc.

Summing up, he is responsible to see that at all times there is sufficient and proper switchboard, trunk and toll line equipment to handle in the most efficient and economical manner all telephone calls that may be originated.

Somewhat of a job, is it not, when we consider that he is not a prestidigitator and cannot cause equipment to spring into existence.

He must know what the number of calls and their nature are at present, and, with a reasonable degree of accuracy, what they will be each year in the future.

The amount of equipment required and its type is determined by the number of calls made and their nature, and the number of calls made is determined by the number of subscribers.

To provide equipment, switchboard, trunk or toll line it is necessary to know the rate of growth that is to be expected and the probable ultimate development.

This should be furnished by a Commercial Engineer, who should be able to determine from population figures and the estimated population growth, from studies to determine the nature of the inhabitants, their business and home condi-

tions, the ultimate number of telephones (both stations and lines) to be obtained by a given time, and the rate of obtaining them. I mean such studies as Mr. Berry explained, in a recent address, were made for Philadelphia and are now being made for Scranton and other places.

The Traffic Engineer's job is one of planning equipment for the future handling of telephone calls.

Let us assume that all places are now provided with sufficient equipment to handle the business until such time as additional facilities are provided through the regular schedules. We would then say the Traffic Engineer's work starts with the preparation of the annual estimate in the fall of the year. The annual estimate is divided under two headings, Switchboard Equipment and Trunk Line Equipment.

The Traffic Engineer bears in mind that the time necessary from the approval of the Traffic Study to the completion of the job is about as follows:

- | | |
|---|-----------|
| (a) A large central office and building.... | 2 years |
| (b) A #1 central office with no building.... | 18 months |
| (c) An addition to #1 equipment, incl. add'l sections or rewiring of existing sections..... | 1 year |
| (d) Add'l jacks in a #1 equipment with no add'l sections..... | 6 months |
| (e) A new small C. B. central office, such as #9 or #10 board..... | 10 " |
| (f) A new magneto equipment..... | 3 " |
| (g) Additional jacks in small C. B. boards..... | 3 " |
| (h) " " " magneto boards..... | 2 " |
| (i) " " toll lines..... | 2 to 5 " |
| (j) Toll cable..... | 1 year |
| (k) Inter-office trunk cable..... | 6 months |

Let us first take up his work in the preparation of the annual estimate for switchboard equipment.

He has a book of curves (a separate curve for every office) showing the capacity of the present switchboard, the amount of line equipment installed, the number of working and spare positions, and all other necessary data to show the equipment in use and available. He plots on this curve each month the number of lines and stations in use. He receives from the Commercial Department their provisional estimate. This estimate shows for every office what business they expect to do during the following calendar year.

It is divided to show what they consider imperative and what Possible, what Gross and what Net, and is divided to show the different classes of service. It also shows what superseding work they expect to do.

Bearing in mind the time elements required to obtain additional equipment, he figures out when it will be necessary to send through the recommendation for additional equipment. If it will be necessary to recommend it during the next year, he figures out the kind and approximately the amount of equipment needed to last for three years from date of installation. It has been found that in most cases it is more economical to provide for three years than to go back in a shorter space.

He forwards this list or estimate of all jobs, showing the type and approximately the amount of equipment to be recommended.

From this estimate is figured the amount of money that it is necessary to have appropriated to complete the work.

Having figured out approximately the dates at which the equipment will be needed, he prepares a schedule which is sent to the Western Electric Company. This applies to cases where sections of switchboard are needed, or a considerable amount of rearrangement is to be done. The smaller jobs are lumped together and a total of the amount to be required and approximate dates are given.

Each month the curves are referred to, to see to what extent the estimated growth is being reached or exceeded. If the growth is falling far short of the estimate, it is possible to re-schedule the job with the Western Electric Company for a later date. If it is exceeding the estimate, it may be possible to have the job re-scheduled for an earlier date. This re-scheduling is often very expensive and always more or less upsetting, and should be avoided if possible.

When allowing sufficient time to obtain and install the new equipment, the Traffic Study becomes due, the real work on this particular job commences.

There are two classes of Traffic Studies for Switchboard Equipment:

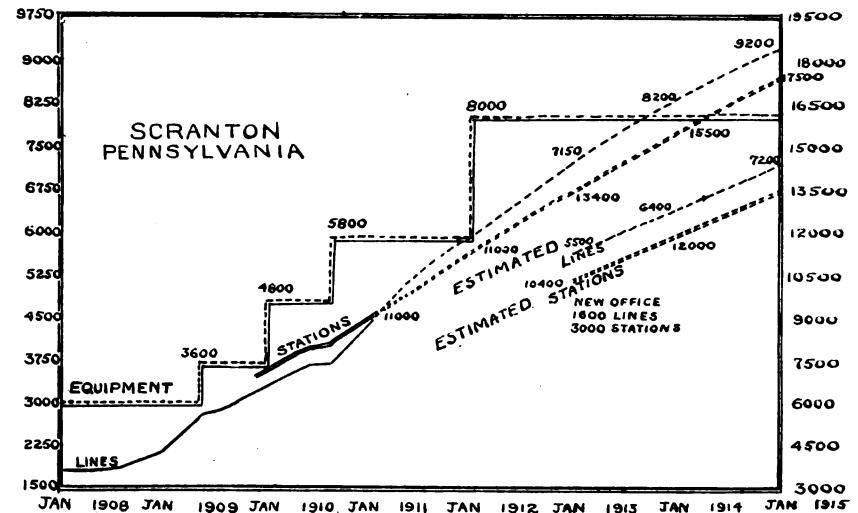
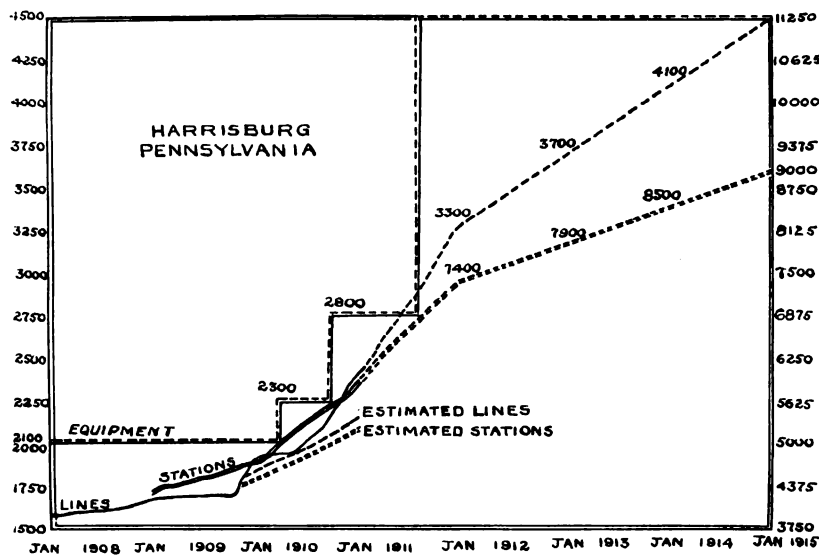
1. One for additions to present equipments.
2. One for complete new central office equipment.

The first is not as difficult to make as the second.

When making a Traffic Study for additions to present equipment, the Commercial Department should be again consulted to see if they have revised their estimate for the year. They should be asked to forecast as nearly as possible the growth for the three following years. It should be learned if they have any special campaign methods that might possibly be employed (such as trial service either for new or superseding contracts); whether any changes in rates are contemplated, either for local or toll service; whether particular person calls will be continued on low toll rates or changed to a two-number basis; what the present and future states of the Opposition may be. In other words, he should consider all contingencies that might affect the Commercial Department's estimate or might affect the calling rate. He should consider any possible changes in operating methods or rearrangement of present equipment that would prove more economical and efficient. The time when new equipment is being installed is the most economical time to make such changes.

When making Traffic Studies for complete new central office equipment, the same considerations should be given as when making studies for additional equipment, but it is necessary to look much farther ahead and consider what the ultimate number of lines will be within the lifetime of the switchboard to be installed. This is necessary to determine the type of switchboard, whether Magneto, No. 9 Common Battery, No. 10 Common Battery or No. 1 Common Battery, and, if a No. 1 Common Battery, of what capacity; also to determine the amount of building space required initially at any given time in the future or ultimately. This is necessary in remodeling our present buildings, in buying property and erecting new buildings, and in laying out the equipment in the buildings.

It is necessary to determine what class of service will be given, whether flat rate or message rate; what the calling rate will be; what per cent. of calls will be trunked, and whether over ring down or call circuit trunks; what toll business will be handled on a two-number basis and what on a particular person basis; what toll business can be handled by local operators and what must be handled by toll operators. When we have figured the number of calls to be handled by toll operators, both at the time of installation and ultimately, we must determine whether the toll positions should be placed on the local switchboard with a complete multiple of subscribers' lines, or whether a separate and detached toll board should be installed. In many cases it is desirable and economical to combine the toll board with the local board, having a com-



Traffic Engineering

(Continued)

plete subscribers' line multiple in front of the toll positions, until such time as the number of subscriber line multiple jacks become so great that the interest on the investment is larger than the interest on the investment of a separate toll board plus the extra cost of operating. When this takes place we convert the toll into local positions and install a separate toll board and trunk to the local board for connections with subscribers' lines. This usually happens when the number of subscribers' line multiple jacks in front of toll operators would reach 10,000.

Such a change is now being made at Wilkes-Barre, where it was necessary to add additional lines and local operating positions. It proved more economical to convert the 11 toll positions to local positions and install a separate toll board.

Sometimes, in our larger cities, where there has been a considerable growth in one section of the city somewhat remote from the section where our central office is located, a study of plant and operating costs will prove the advisability of establishing a new central office. It is necessary for the Traffic Engineer to keep well posted on this Plant condition. It may be that by recommending the establishment of the new office a year earlier than it would prove in for plant reasons only, he may avoid recommending the installation of additional switchboard that would eventually remain idle for an indefinite time. This is now the case in Scranton. At present we have available switchboard to last till January 1, 1912. In order that we may have available switchboard when this becomes exhausted, it is necessary for us now to recommend an addition. We can add only 4 sections on a line with the present board, as they would extend to the end of the room, and the room is not wide enough for the switchboard to turn.

These four sections would last till July, 1913, or 1½ years from completion. Ordinarily we would install sufficient switchboard to last for three years, in this case 9 sections. To install 9 sections would mean another line of local board of 5 sections on the opposite side of the room. This would cost more to install and operate than if in one line. Within one year after this second line of switchboard would be in use it would be vacated by the opening of the new office. The opening of the new office would also vacate 4 sections on the main line of board, or a sufficient amount to last for three years. It is, therefore, advisable to open the new office one year earlier and install only 4 sections on the one line of board.

In taking up the Traffic Engineer's responsibility for recommending additional toll line facilities and inter-office trunks, we might assume that, as in the case of central office equipment, we have ample facilities to handle all business for a year to come, and say that his work along this line commences with the preparation of the annual estimate.

He has the peg counts, taken one or more days each month, showing the originating town and destination town of all calls. These calls are summed up for the days they are taken and plotted on trunk line maps of the territory, according to first route, regardless of actual handling. They are plotted to show the calls passing over every pole line section (by pole line section I mean the section between two towns). The calls are also plotted to show the respective circuits they pass over, to show the paid and free calls and what are local between the two towns or are switched to points beyond. Knowing the number of circuits and their arrangement, and knowing the standard carrying capacity of circuits in various groups for calls of each class, he can determine to what extent the pole line section is carrying its full capacity. Estimating the increase in trunked business by considering the estimated growth in stations in the various towns, and considering the Company's plans for rate changes, he can determine approximately how long the present trunk line facilities will last and when and how many additional lines will be needed. He is also aided in these studies by the weekly report, showing for each office the originating toll business.

He estimates the number of circuits that it is probable will have to be asked for during the next calendar year, and prepares a list showing between what points they will be needed and the approximate dates they should be completed. He should also show the approximate pole line mileage and whether the circuits should be phantom or physical.

From this estimate the Plant Department estimates the cost of construction and the Company is asked to make the money appropriation.

As I have intimated before, the Commercial and Rate Departments should be consulted to ascertain if any plans are contemplated that might effect the trunk line calling rate.

The Traffic Engineer should look ahead and estimate the probable growth for several years. It may be that his estimates will show that there will be need for a large group of circuits on certain pole line sections. In many cases, where the number of trunk circuits is large, it is more economical to replace the open circuits, or a certain portion of them, with cable to care for the future than to construct additional aerial lines.

He compares from month to month the actual

loads with the estimated, and, bearing in mind the time elements required for obtaining the circuits from the approval of the recommendation, he can decide when the recommendation should be forwarded. He should also allow sufficient time so that the construction work may be done at the time of year that is most economical. During spring, summer and fall it costs less to do pole line construction than in the winter months. It is advisable, as far as practicable, to recommend the completion of trunks in adjacent territory near the same time in order to save loss in moving gangs and material. It is advisable also to distribute the time of completion of trunk lines throughout the whole of the good season, thus allowing a reduction in the number of gangs and more efficient working schedules. In studying trunk line requirements the Traffic Engineer should always consider the possibility or advisability of using phantom circuits. He is governed in this on account of transmission by the number of short haul or long haul trunk calls and the number of switched calls and the number of switches involved. Side circuits are satisfactory for short haul business, while phantom circuits are better from a transmission standpoint for long haul business. If the group of circuits is small, he should guard against the use of too many phantom circuits, as trouble on one side circuit may throw all three circuits in trouble.

The Traffic Engineer is responsible for the design and arrangement of switchboards.

It is assumed that when the equipment is turned over to those responsible for its operation that they will understand how it should be used and see that it is used most efficiently, but the Traffic Engineer should keep in touch to see that they do.

For example, if a board of a new design is put in with new and untried methods, such as a new board similar to the one to be installed at Pittston, where the toll business will be handled at Scranton and Wilkes-Barre as toll and L. D. centers with the exception of a small portion of the toll business that will be handled directly to the connecting Commonwealth Telephone Company (this business being handled through the one toll position to be installed at Pittston).

The Traffic Engineer should constantly keep on the alert to see if any rearrangement or new method would effect greater efficiency and economy.

The volume of business handled between Scranton, Pittston and Wilkes-Barre was so great that additional trunk circuits were needed. In planning for the future it proved more economical, considering quicker operating methods which would result in a greater Traffic, to install a cable between Wilkes-Barre and Scranton.

ton, passing through Pittston, a distance of 19 miles.

The introduction of this cable made it possible for us to put calls between these places on a call circuit basis, and between these places and Kingston on a tandem circuit basis. This tandem circuit basis can eventually be extended to include Plymouth and Nanticoke when the amount of business warrants placing Plymouth and Nanticoke on a call circuit basis with Wilkes-Barre.

By the introduction of the cable it is possible for the local operators to handle two-number business between these places on a call circuit basis and have proper supervision.

It is advisable, for operating reasons, to have particular person business handled by toll operators. The former method is quicker and less costly. It is, therefore, important for us to make every effort to encourage two-number business and eliminate, as far as possible, the particular person calls.

The Traffic Engineer is responsible for the routing instructions of all toll business, and consequently is responsible for the proper arrangement of toll circuits for the approved routings.

In arranging the routings he should always consider transmission, speed of service and most economical route. These are effected by the number of switches, length of open wire or cable, phantom coils, etc.

It is often found that the volume of business warrants direct circuits between distant important centers. By cutting circuits through at intermediate offices, and thus eliminating switches, we improve transmission and service and reduce operating costs.

Where there is a group or community of offices it is generally advisable to connect our long haul trunks to the central or most important office and handle long haul traffic of the smaller offices through it. I will say more about this a little later.

All the Traffic Engineer's studies are based on the deductions from records, such as peg counts, service observations, load figures, etc. It is, therefore, necessary for him to prescribe what records shall be kept, how they shall be kept, and to satisfy himself as to their accuracy; at the same time he should eliminate the keeping of unnecessary records, as only such records are of value to him as may help him forecast for the future or correct the faults of the past.

Peg counts are of immediate value to the operating force in aiding them to determine the efficiency at which they are working. A continuous record of peg counts is of value to the Traffic Engineer in that he can follow the fluctuation and growth in business handled and forecast for the future. Peg counts, together with service observations, are of value in determining operator work units and equipment load factors. I believe that more simple and correct methods of obtaining and using records can be devised; this is especially so of toll peg counts, where I know there is plenty of room for improvement. Continuous records are of the most value and are most convincing, and it should not be necessary for us to depend so much upon special records to prove questions at issue.

The fifth duty of the Traffic Engineer that I mentioned, namely, his responsibility for the proper use of existing toll and central office plant, such as arrangement of toll lines, routing of toll calls, arrangement of switchboard equipment to obtain highest efficiency, proper operating methods, etc., is the greatest and, I might say, the most important part of his work; the others are more or less dependent upon them.

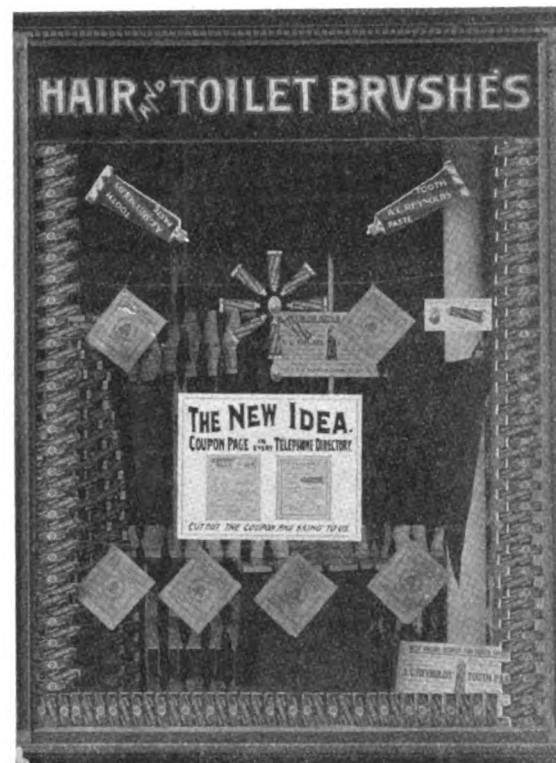
Practically all of a telephone company's capi-

tal is invested in its plant. The investment is made for the sole purpose of rendering service. If the plant is not so arranged and operated that the company can produce the best grade and the greatest amount of service for the investment, there is a waste of money. Our territory is large and the growth in such a short time has been great; methods and arrangements that a short time ago were best suited to the conditions have changed; the increase in the volume of business between places has made it possible to employ new methods for handling it. When the toll business through our territory was comparatively small, we thought we should have direct circuits between two points when our records showed a full circuit load. It is necessary for us now to view our whole toll plant from a different standpoint and work with a definite plan always in mind. By selecting out toll centers we can group a sufficient amount of toll calls passing between these centers to employ a new and more economical method which will increase the speed of operation. There is little doubt but that much of our longer haul traffic can eventually be placed on a call circuit basis, and when this is accomplished the use of tandem trunking will be further extended. As an instance of this, let us take what is being done between Norristown and Philadelphia, when the volume of business passing over the circuits between these places became so great that some relief had to be provided and a study showed the advisability of placing cable. With the cable it was possible to devise a new operating method whereby the toll business from Norristown and the whole Norristown District could be grouped at Norristown. With this arrangement the calls from Norristown to Philadelphia and from Philadelphia to Norristown can be handled direct by local operators on a call circuit basis. Business from points beyond Norristown to Philadelphia may be grouped at Norristown and handled over the same call circuit group from the Norristown toll board. Business from points beyond Philadelphia to Norristown will be switched through a tandem at Philadelphia over the call circuit trunks, and business from points beyond Philadelphia to points beyond Norristown will be switched through a tandem at both Philadelphia and Norristown over the Philadelphia and Norristown call circuit trunks. In this way the toll business between these centers will be handled over three large groups of call circuit trunks. As compared with the many small groups of ring-down trunks formerly used, the increase in trunk efficiency and speed of service being apparent. With such changes in operating methods there is a resulting necessity for changes and improvements in switchboard equipment and of development of new circuits.

Mr. Brandeis, counsel for the Western Shippers' Association, recently made the statement that he could prove that the railroads of America could save \$1,000,000 a day by improvements and more efficient management. We do not believe that such a statement, mentioning a much smaller amount, could be made to apply to the Bell System, but we do know that with the great amount invested in the plant of our own part of the system the waste would represent an enormous sum of money if there should be left room to still further use our plant at a higher efficiency.

London and Paris Telephone Rate

The rate for telephone conversation between London and Paris is to be reduced, says an exchange, from 8 shillings to 4 shillings, as soon as the additional land wires are placed in service.



One-half of a Drug Store Window in Baltimore, Md. All of this Window was Devoted to the Telephone Directory Coupon Page

Baltimore Division

J. C. STACK, Division Correspondent

Annapolis District. The Plant Department in Annapolis notified the District Manager, while a move was being made, that the subscriber wanted an extension telephone. The application was obtained a few minutes later and the extension was installed and working in less than thirty minutes. **Clemson**

The following letter was received about a month ago by the Hagerstown chief operator. It was signed by a prominent local official of the Western Maryland Railway Company.

I desire to compliment you on the efficient service rendered by your force during the past year, and the polite and cheerful manner in which they have answered our inquiries, and looked after our business in general. Not only myself, but the entire force thoroughly appreciates the attention received, and desire to thank you, and, through you, your entire force. The service we receive is unusually good, and I feel that you should know that it is appreciated.

It was my intention to write you at the first of the year, but through absence from my office and press of work, I failed to give it attention at an earlier date.

Plankinton

In a conversation overheard in a car at Frederick, Md., between two men, one a harness salesman and the other a lime salesman, the various methods of selling their wares to farmers were being discussed. Both were positive that they sold about twice as much over the telephone as they did by all other methods. One stated that it was a paying investment, in that for the sum of about twenty-five or fifty cents he could do as much work in one hour over the telephone as he could do in a day by hiring a team.

The Plant Department at Frederick, Md., received an emergency order for a new telephone in a house where there was sickness at 1 P. M., and at 2 P. M. the telephone was O. K'd.

The same day a telephone was installed and eight sections of wire run for a loop in exactly two hours by one combination man and an installer.

Clarksburg, West Virginia

(Continued from page 1)

sand feet. This is equivalent to selling coal at seventy-five cents a ton. The farm near Clarksburg that lacks its own gas well is an exception. In fact, gas wells are as common to the farms of Harrison County as are rain barrels to the residents of other rural communities. This section leads the world in the amount of natural gas produced.

Last year more than fifty million tons of coal were mined in West Virginia. And Clarksburg is the center of these coal fields. There are more than 100 coal mines now in actual operation in the Clarksburg neighborhood. These mines are within a 25-mile radius of Clarksburg, and it has been estimated that 350,000 acres of coal lie in this tract, awaiting the miner's drill.

Millions of acres of woodland, also, are awaiting development. At present lumber is being taken to distant cities, made into furniture and sold. Sometimes this furniture finds its way back to Clarksburg. "Why doesn't someone start a furniture factory here?" said a member of the Clarksburg Board of Trade not long ago. "We need one badly and the right kind of promoters wouldn't have to hunt very far for capital."

So it can readily be seen that Clarksburg has unusual advantages in the way of natural resources. But it also has unusual advantages in the way of citizens who have faith in the town and are investing their money with the firm conviction that the city has a remarkable future.

The Goff building, named after the Clarksburg citizen who built it, is the most striking office structure in West Virginia. It was opened just a few days ago and is as fine in accommodations and appointments as many metropolitan skyscrapers.

The Waldo hotel is credited by commercial men with being one of the very best hostleries between Washington, D. C., and Cincinnati, O. The Merchants' National Bank is an excellent building. It is said that the contractor traveled all over the United States in order to procure Italians skilled in carving the particular kind of stone used in the ornamentation of this building. Clarksburg's court house is a substantial building, but the city has outgrown it and a new one will be erected within a short time. The Empire building is another structure that is typical

of the newer Clarksburg. Our Company has just purchased a lot west of the Empire building, and it is expected that a modern home for the Clarksburg Plant, Traffic and Commercial Departments will be erected on this site. The lot, which is 35 by 95 feet, faces the two trees shown in the photograph. The present office of the Company is on the same street, directly opposite the Empire building.

Clarksburg has a historical side. The city, which is many miles south of Mason and Dixon's line, is situated in a "Northern" State and furnished a national hero whose courage on the Confederate firing line made his name familiar to everyone. "Stonewall" Jackson was born in Clarksburg in 1824. His mother died in 1834, leaving Thomas Jackson an orphan. The boy went to live with a family on Blennerhassett Island, near Parkersburg, W. Va. It is said that much of his time on the island was used in riding horses. Then came his appointment to West Point, the breaking out of the war and Lee's famous remark, "See, there is Jackson standing like a stonewall." The cabin in which Jackson was born is remembered by many of the older Clarksburg citizens, and it is a common regret among them that the building was demolished.

Organization Changes

K. W. Butterworth, formerly Wire Chief at Carbondale, has been transferred to Pittston as Wire Chief, and Arthur G. Leas, Combination Man, Scranton, has been transferred to Carbondale to fill the vacancy.

James S. McCracken has been appointed Supervising Salesman at Steubenville, O.

J. A. Mann, formerly in the office of the Plant Manager, has been appointed Supervisor of Supplies, Eastern Pennsylvania and New Jersey divisions.

A. S. Schultz, Clerk, has been transferred from Engineering Department to Plant Department, Harrisburg.

H. C. Brown, Clerk, Baltimore business office, has been appointed Supervisor of Salesmen, Baltimore.

S. D. J. Dunlop has been promoted from Service Inspector to Traffic Chief, Charleroi, Pa.

F. P. Peevish has been transferred from Clerk to Traffic Chief, Hill exchange.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. On Saturday, February 11, the Delaware Union Telephone Company signed Plan "A" and Plan "B" applications to be connected with our Riegelsville and Easton central offices. The Delaware Union Telephone Company was organized by the opposition company to develop the section between Easton and Doylestown and to connect with the Farmers' & Merchants' Telephone Company (independent), which in turn is endeavoring to secure a connection with the opposition company at Easton. The Delaware Union Telephone Company succeeded in getting 60 stockholders and obtained the charter from the state of New Jersey. Poles were erected from Ferndale, Pa., to Phillipsburg, N. J., a distance of twenty miles. Through the efforts of our rural salesman Bregenzer, 30 stockholders in the Pennsylvania territory cancelled their stock subscription and were connected with the Lower Saucon Telephone Company, a rural connecting company at Riegelsville. The rest of the stockholders were also interviewed and induced to advocate Bell service. The opposition company had their representatives from Philadelphia at these meetings, but were finally told that no opposition service was wanted by those interested in the Delaware Union Company. It is estimated that 40 subscribers will be connected to our Riegelsville and Easton central offices. The material has been ordered from the Western Electric Company.

A subscriber of the opposition company at Easton ordered his telephone out repeatedly, and the company, ignoring the notices, finally became disgusted with the treatment and fastened the receiver to the hook by means of a padlock, so that no one would be able to use the telephone.

Altoona District. A recent issue of the *Altoona Times* has the following to say concerning its newly-installed private branch exchange equipment:

The Bell Telephone Company has completed the installation of a private branch exchange in the Altoona Times building, whereby direct communication is now possible with the business, editorial and mechanical departments. This service will be of great benefit to the Altoona Times, as well as to its patrons, who will be able to secure direct connection with the department with which they wish to confer, saving tedious and vexatious delays which were unavoidable under the superseded system of single-trunk connection.

During times of great popular interest in public questions, when hundreds of people appeal to newspapers for advance information, the double trunk and private branch will enable the Altoona Times operatives to expeditiously handle inquiries which hitherto have prostrated the service. During the recent election the Times wire was wholly inadequate to meet the demands made upon it. This will not be possible in future.

Harrisburg District. A Bell salesman in the Chambersburg district was approached by a prospective subscriber at 4.30 P. M. and told that if a telephone could be installed in a prospect's residence by seven o'clock that same evening he would sign an application. There was no installer available, but a salesman and the local manager made a temporary installation, with the help of a lineman from a line gang that happened to be in town. At seven o'clock the telephone was installed and working.

Several subscribers in Franklin County who are advertising their farms for sale make a



Site of Cabin in Which Stonewall Jackson Was Born, Clarksburg, W. Va.

Clarksburg, W. Va.
Court House

All Buildings on This Street in Clarksburg Have Been Built Within Two Years

feature of the statement that they are equipped with Bell telephone service.

A young man at the Mercersburg Academy was sick and desired immediate communication with his father in Pittsburg. The Pittsburg office stated that the young man's father had gone to New York, but were unable to learn where he could be located. Several hotels were mentioned where the man was accustomed to stop, and the operator after a number of efforts finally located him and a very satisfactory conversation was held. The time consumed was less than an hour.

Dr. Neven, the attending physician at Mercersburg Academy, stated that service of such a character should be encouraged. He applied for a direct line and an extension set. In this case it was not the salesman who made the sale, but *competent operating*.

Reading District. On a recent Saturday morning two emergency orders, one business and one residence, were received at the commercial office in Shamokin. One hour after receiving the line orders, both telephones were installed and a long distance message was at once sent over the business telephone.

The advertisement, "It Ruined My Business," was very forcibly illustrated in Shamokin recently. A young lady bookkeeper employed by the firm of A. Smith & Son, having occasion to stay in the store later than usual, was confronted by a tramp pointing a revolver at her head, at the same time demanding her money. Without losing her nerve for a minute she quickly grasped the telephone and called for help. The tramp made a sudden exit, but was captured later in the evening.

On the night of February 4, 1911, a night operator on the Shamokin exchange discovered fire in the rear of a large clothing store in the business section of the town. Her promptness in calling the several fire stations was the means of preventing a great loss in stock and property.

Scranton District. During the week ending February 11 our representative at Honesda'e obtained three applications for service in which the applicants had discontinued opposition service.

The landlord of a large office building which was recently erected in Carbondale, Pa., requested our Company to move a pole that was located on the corner in front of the building. The opposition company, having a pole nearby, was also asked to vacate, in order to improve the appearance of the building. Our Company removed its pole a short time after the request was made, but up to the present time the opposition company has not complied with the request. The man recently called at our commercial office and thanked the local manager for the prompt and courteous treatment received from us.

Williamsport District. This voluntary testimonial from the secretary of one of the many rural lines connecting with our Bellefonte exchange is especially interesting for the unmistakable manner in which its writer has expressed his sentiments:

DEAR SIR:

At various times and just recently reports have been circulated in this community that the service given on our telephone lines connected with the Bell Exchange was not what it should be.

No doubt these reports have been started through subscribers on competing lines in this vicinity, and it is the wish of the members of Branch Company No. 5 to say to you that we are very well pleased with the service we are getting and have gotten during the five years of our business relations with the Bell Company. We hope for a continuation of the same good service, and know we will get it if we do our part and keep our lines in good repair.

Telephone Societies

The Telephone Society of Washington

722 Twelfth Street, N. W.

March 2.

MAJOR GEORGE OWEN SQUIER, Signal Corps, U. S. A., will address the Society.

Subject: "Multiplex Telephony."

The Philadelphia Telephone Society

1420 Chestnut Street.

March 7.

Speaker: P. C. Staples, Publicity Manager.

Subject: To be announced.

Reading Plant Class

31-33 North Fifth Street.

March 14.

Subject: "Storage Batteries."

Reader: W. L. Nagle.

Comments: Hohl, Hasskarl, Fegley, Freese, Lewis and Burkhardt.

The Telephone Society of Western Maryland

Plant Office, Hagerstown.

March 14.

Subject: "Transmission."

Speaker: E. O. Righley, District Engineer.

The Telephone Society of Wheeling

The Telephone Society of Wheeling has been organized, with officers as follows:

President, W. S. Miller; vice-president, Allen Poe; secretary, George M. Callendine; treasurer, F. M. Wilson. The society will meet the third Thursday in each month in the telephone building, Wheeling.

West Philadelphia Telephone Society

Lancaster Ave. below Fifty-second St.

March 21.

Speaker: W. G. Lewis, District Manager Main Line and West Philadelphia Districts.

Subject: "Prospects: A Few Details."

Employees of the Company are invited to be present.

Altoona Plant Class

1110 Thirteenth Street.

March 7.

Subject: "Construction of a Forty to Eighty-Wire Line."

Reader: J. F. Zison.

Washington Division

R. G. HUNT, Division Correspondent

The first exhibitors' private branch exchange system in this division was installed by the Washington Commercial department for the automobile show at Convention Hall during the week beginning February 13. A switchboard with 6 trunks and 26 stations was installed and the services of an operator were provided by the Company for both afternoon and evening exhibitions. Public stations operated from the switchboard were installed in booths at either end of the hall, and above these were hung large, specially designed Bell signs. The commercial department also arranged to have a salesman on hand at each of the evening exhibitions to answer questions and to "sign" any applications for new service that might be obtainable. The exhibition has not yet ended, but we already have succeeded in obtaining several applications for service in this way. The net results to the Company from this system have not been ascertained, but it is believed that we will be amply recompensed for the installation, not only in an actual money return, but in the advertising value of having the private branch exchange demonstrated in actual operation before many future prospects. A large quantity of advertising matter was distributed by the Company during the show.

Mr. A—, a recent subscriber to suburban service in connection with the Berwyn exchange, stated that his object in having a telephone installed was that he might put his household expenses on a cash basis. Prior to the installation of the telephone he had been in the habit of placing his orders with representatives of certain stores who called at his house every morning. He had credit with these firms, and incurred bills which were settled at the end of each month. Now that he has a telephone, instead of depending upon a few stores, he calls up a number of different ones and places orders where the best values are to be had. He then pays for all orders upon delivery. Mr. A— stated that during the first month he effected a clean saving of \$9.00 by the use of the telephone.

The Cross Talk Club

The regular monthly meeting and dinner of this club was held at Kugler's Restaurant, February 20, at 7 P. M. P. C. Staples, Publicity Manager, read the paper of the evening, "Advertising in the Selling Campaign."



Waldo Hotel,
Clarksburg, W. Va.

Empire Building,
Trees Shade a Future
Bell Telephone Building

Merchants' National Bank,
Clarksburg, W. Va.

The Wonders of the Telephone Business

(Continued from Page 1)

fascination of this great business that it is difficult to get to something else.

Here in Pittsburg, where the great word is tonnage, tonnage, tonnage, I feel it very difficult to bring to you a subject touching something as dainty and elusive as we all know the telephone to be. For example, one whole mile of telephone wire (such as is used in cables) weighs but ten pounds. That is one reason why, in speaking to a Pittsburg *tonnage* audience, it requires another point of view to handle the subject well.

If the telephone made as much noise as an automobile, if it crashed around the corner at you and shocked you out of breath, then you would have it impressed upon your mind that it is a great thing. But the telephone never has knocked a man down; the telephone never yet shrieked and yelled like a steam whistle; it never did anything sensational, and it is a peculiar thing.

Pittsburg was early in the telephone business. A Pittsburg man was one of the very first, one of the first five, one of the first three, to get the idea of a telephone exchange. It was Mr. T. B. A. David, who is still living in this city, who organized the printing telegraph business before telephone instruments were connected with the wires. He helped to string the first wires here in Pittsburg, in 1877, from his own home to the iron exchange on Fourth Avenue. Now the industry has spread all over the world, and Pittsburg alone has 65,000 telephones in service. It has more of these instruments than has the whole Italian nation with its 32,000,000 of people. In fact, Italy has 5,000 less than your metropolitan area. You have three times as many as Spain, twice as many as the whole of South America, and then some. So, you see, Pittsburg has not only a record for an early beginning, but she is keeping up her record in the telephone business.

The telephone is one thing that's not always appreciated. It is so quiet. It has no smoke. In Pittsburg everything has to smoke to be appreciated. "Look at any business," a Pittsburg man will say. "It has no smoke—it can't amount to much." In fact, Pittsburgers have a sort of superstition that if a business puts forth no smoke it is of lesser importance. It's only a superstition, but we can't get rid of it. The telephone exchange doesn't smoke. It sends forth no sparks like the plant in which the Bessemer converter handles its molten metal. By the way, when Andrew Carnegie—the man whose name this building bears—first saw a Bessemer converter he decided to stick to that business. Before that event he had been in nearly every business. It seems too bad when fifty calls or so are received in a central office that the handling of them does not cause sparks to rise, for then people would say, "They are doing a great business there—see the sparks?"

The telephone is different from every other business appliance. It never speaks except when spoken to. It doesn't blow its own horn. It has no horn to blow. The telephone business is the *business with bells on*. It is a modest profession, for it doesn't even breed talkers. Electrical men are too busy to talk. You people here talk so little that you even arrange for a speaker to ride eleven hours to come and talk to you instead of obtaining a speaker among yourselves. Telephone men are bred to the idea that talk costs money. We allow others to talk so that we may get the money.



Carnegie Auditorium, North Side, Pittsburg, where Mr. Casson spoke

It is for that reason I am speaking here to-night, I suppose, to call your attention to this fact, that the telephone has been overlooked. Possibly the telephone has been overlooked, and electricity has not been appreciated because your professions are still young. None of you here has yet reached that height where you do not say "I do not know." With the electrical profession, why, your daily conversation all the time, day and night, is about something you do not know. You say "I don't know what about this," and "I do not know what about that," and you are continually admitting ignorance, and yet you claim to be professional men. The public cannot understand you. You see, it is accustomed to a different sort of professional man who covers up all the mysterious part of his profession by claims of understanding it all.

In contrast with this business where would the legal profession be if all lawyers said they didn't know when they didn't? Where would the medical profession be if all doctors said they didn't know when they didn't? Where would the clerical profession be if the ministers said they didn't know when they didn't?

Now, as a matter of fact, I daresay this: that there is not a professor of philosophy in New York who can understand the switchboard in ten lessons. He can tell you all about Plato; he can understand Hegel and Kant; he can tell you the law of the universe, and the law that holds the planets in place, but I guarantee he cannot understand the back of a switchboard in ten lessons, nor that a man who has a brain of ten-professor power can make the simplest kind of a switchboard of any kind.

Here is a little disc, a little bit of light metal, and yet that thing is an ear and a tongue; that little thing can speak every language in the world, it can talk every language, it can convey every tone of voice. There are one and one-half billion people in the world; there are one and one-half billion tones, and every single tone and dialect and language can be talked by that. You see it overwhelms you.

Here is the tiny disc. I speak; it shudders. It has a different shudder for every sound. It

has thousands of millions of different shudders. There is a second disc, a thousand miles away. Between the two discs runs a little copper wire. As I speak, a thrill of electricity runs along the wire; the thrill is moulded by the shudder of the disc; it makes the second disc shudder, and the shudder of the second disc reproduces my voice. That is what happens. But how—not all the scientists of the world can tell. Nobody knows, and yet that is the common telephone. We all speak into it and we think it is so simple, and yet it is a marvel that none of us can understand.

The telephone business was built by greenhorns, is operated by greenhorns and is used by greenhorns. In fact, some of its users can't talk at all so that they can be understood.

But the telephone system is everywhere. You Pittsburgers and, in fact, the telephone people everywhere should talk *acreage* instead of tonnage, for the telephone buildings are everywhere. The Bell system has twenty times the mileage of every railroad in the world combined—and a double track, at that.

A railroad man was trying to tell me about the great complications of keeping the railway terminal tracks clear. With a certain number of tracks they are able to handle a certain number of trains each day. I told him that a telephone "terminal" is very much more complicated, and that it handles thousands of telephone "trains" where the railroad terminal handles hundreds or tens. I showed him that where he could handle one train over one track and two trains over two tracks we could and do handle three "trains" over two tracks simultaneously by means of phantom circuits.

The public doesn't appreciate how large a thing the telephone business is or what it costs. A 4-position wire chief's desk costs as much as a house and lot. The public does know what a piano costs. Suppose, then, we compare a piano with a manhole. Both cost the same. In New York there are 8,000 manholes, costing from \$200 to \$1,500 each. Those cut out of the solid rock cost \$1,500. Suppose the telephone company should purchase pianos and place them over each of the 8,000 manholes to emphasize the cost. Then the public would appreciate the actual cost of a part of the telephone plant to which little thought is usually given. These manholes are the breathing holes of the great telephone system.

Another point. The average telephone station in a city is one mile distant from the central office. A mile of wire (in cable), as previously stated, weighs ten pounds. A single subscriber's circuit, therefore, weighs 20 pounds, which, added to its proportionate share of lead in the cable (75 to 100 pounds) and to its share of the weight of the ducts and switchboard, makes a total weight of 150 pounds. A telephone, therefore, weighs not as we ordinarily think, 4½ pounds (weight of a portable desk set), but 150 pounds—the weight of a person.

A city switchboard costs as much as the Statue of Liberty in the New York harbor—nearly \$200,000—and some cost more than that. It contains 2,000,000 solderings, 15,000 electric lamps and 4,000 miles of wire. The switchboards in New York City alone equal in cost the great ocean liner *Lusitania* with \$2,000,000 to spare.

There are now 10,000,000 telephones in the world, involving an investment of \$1,500,000,000. In a year 14,000,000,000 messages are sent over 21,000,000 miles of wire. There are 250,000 people making their living in the telephone business. The United States has seven-tenths of all of the telephones in the world. For every 100

of population in the United States there are 8 telephones; no other country has 4. There are half as many workers in the telephone business in this country as there are inhabitants in Baltimore. Why shouldn't *we* have two Senators? The average American family sends five telegrams per year, about 350 letters and 550 telephone messages.

There are as many girls operating the telephone system as would be required to fill Vassar College every day for 100 days. There are 264 wires across the Mississippi, linking the East with the West. There are 544 wires across the Mason and Dixon line, uniting the North and the South. There are thousands of others reaching in every direction and binding our great nation into a marvelously strong whole.

The pinnacle of this great system is New York City, with its half million telephones and system that cost \$50,000,000.

All of this service anyone may have for the price of a *small cabbage*. There is no other business whose employees say, "Come in and use it; come in everybody; make free use of our business and in return give us the price of a small cabbage!" For the price of a single shoe shine you may use the telephone plant which cost \$50,000,000. After I use the telephone service for a nickel and then pay a boy ten cents for a shoe shine I cannot help comparing the investment back of the two charges. The boot-black has a total investment of perhaps fifteen cents, but his charge for the service is ten cents. The telephone call, on the other hand, represents thousands of times that investment, but costs only half as much. That's why I think a commission should be appointed to investigate boot-blacks.

Unlike everything else, if you do not have telephone service you pay for it; if you do have that service you don't pay for it. You save so much by its use that you prove to yourself that it is a direct loss to be without it.

If one telephone call saves fifteen minutes—and that is a very modest average—New York City through that service saves forty-five years every day, which certainly makes it worth its cost. Our grandfathers counted time by hours, our fathers counted time by minutes, and now we count it in fractions of seconds. In saving time we must split seconds.

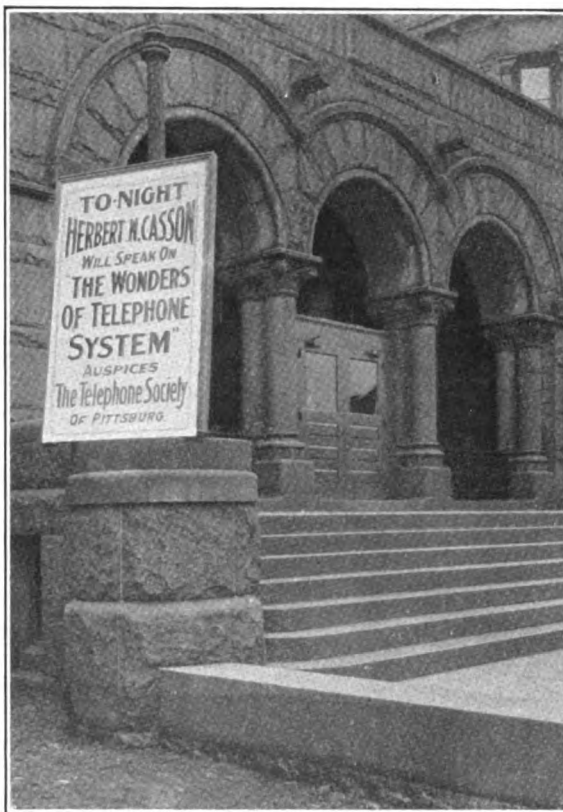
You know that there are four illusions which we gradually lose as we grow older. We have these illusions when we begin life.

The first illusion is that the earth is flat. Very early in life we find out that the earth is not flat.

Then we have the illusion that the earth is motionless. When we are a little older we find that the earth is not motionless, and that nothing in this whole universe is motionless; that the world is whirling and swirling around its axis, around its sun and endlessly through space, whirling and hurling ahead; it is never for an instant motionless.

Then we have another illusion that there is up and down; the old simple theological idea that this is up (indicating) and this is down (indicating). There comes a time in every reflective mind when we find out that there is no up nor down. What seems *up* to an American is *down* to a Chinaman. And so there is no up and no down and no sideways; that impression is an illusion.

Then there is a fourth illusion which we do not overcome until we are very, very wise, and often not until we are quite old; only very reflective people overcome this, and that is that we are *separate individuals*. That illusion is perpetuated by our egotism—by this very apparent thing that we are cut off from things around us;



Entrance to Carnegie Auditorium, North Side, Pittsburgh

that we can move freely and because we can move freely in a certain space therefore we are cut off; whereas we are just as much bound to other people as the thumb is to the hand. We are all just parts of the great social body. We are only factions; the nation is the body and the individual is the cell.

Further, a single telephone is of no practical use. There must be many on a single system before the use may be properly developed. A single telephone may be compared with a hook that is on a 40-foot line, which in turn is fastened to a 20-foot fishing pole. What can the hook do without the line or the pole? Or it may be compared with a finger of the hand cut off and placed by itself. Nothing may be accomplished with that member. That is the basis of the *universal service* of the telephone system.

One advocate of independent telephone systems remarked not long ago that every city should have two telephone systems, because every man has two ears. Now, every man has ten fingers; why not have ten systems. He has ten toes; ten toes and ten fingers—why not have twenty telephone systems. Every man has thirty-two teeth, if he is lucky. Why not have thirty-two telephone systems. He ought to have a system for every tooth. The average man has five thousand hairs in his head. Some here have not quite so many, I see; but the average man has five thousand hairs; give him a telephone for every hair. The average man has ten billion cells in his body. Give him a telephone for every cell. You see there is no end to it, if we are to reason along that line.

There you have the basis of this principle laid down by telephone men. Every man must have a telephone belonging to the same system. Why? Because he is part of the same system; because he is part of the great social body.

The telephone prevents clogging. That is the most important thing in an organized society; the most important thing in a corporation is how to do to-day's work to-day. As Mr. U. N. Bethell has said, we have got beyond that now. We want to do to-morrow's work

yesterday. That is getting it pretty fine. To do to-day's work to-day—that is what we are trying to do, and what we have to do to clear the desk off by five o'clock or by four o'clock.

Also, the telephone scatters population and concentrates population. As to whether the telephone does most to concentrate population or scatter it, I give it up. I thought of that a great deal, and it is an almost insoluble puzzle. Certainly the telephone made the skyscraper possible. If it were not for the telephone, there would have to be so many elevators for the call boys, that you would not get much over fifteen stories. The skyscraper is limited in its height in proportion to the space it can devote to elevators. If you would build it higher, you would have to take the whole of the lower floor for the elevators and you would lose at the bottom of the building what you would gain at the top. The telephone has made both the skyscraper and the suburbs possible.

Not long ago I was in Washington, and I visited Mr. Berliner. I asked him—he is a very thoughtful man, and he was the man who first gave the telephone world the tip on the transmitter—I asked him: "What, in your opinion, is the greatest social value of the telephone?" He said, "I will tell you. The greatest value of the telephone is that it *sets the brain free*." It sets the brain free. You can finish your business. You call up the person you want to talk to. You talk to him; he answers you; that settles it. You shut that door of your mind. That is finished. You write a letter to a man about a piece of business, and the man is in Denver. You have to wait that night, and you think and wonder what he will say. You have to wait the next day, and you think and wonder what he will say. Then the next day, and you still think and wonder what he will say. Four days you wonder what he will say; five days—then the letter comes, and your suspense is ended, but for five days your brain has been held up by the suspense of waiting to know what the answer would be.

I thought that was a very marvelous and acute summing up of the psychological value of the telephone, if you like. It relieves suspense, and you accomplish the business right off; cast it to one side, and now for the next thing. Any man who has twenty things waiting in his mind, how can he attend properly to any one of them? When he can toss them to one side, and throw himself into the next thing, giving his whole effort to it, you see how much more can be accomplished. So I think I am not saying too much if I say that to-day the telephone is the symbol of mental efficiency and national efficiency, and I think it is going to be recognized as that more and more.

The telephone business provides as great a future for the man who starts in it to-day as for the man who started thirty years ago.

There are still many problems in telephony; there are many things that cannot be done, and as there are so many young men here to-night, let me mention two or three things. If you can do these things you may get as much money for them as Mr. Pupin, and you may be as famous as some of the inventors who have already done much for the telephone. The telephone needs a new insulating material; something that is not brittle; something that is tough; something better than glass, not so heavy as glass and not so brittle as mica. There is too much waste to mica. Glass is too heavy. That is one problem.

The Wonders of the Telephone Business

(Continued from page 9)

Restore the grounded circuit that was given up years ago. There was a great battle and a brave one to hang on to the grounded circuit, so as not to have to double the wire and double the copper expense. Now, who will get the telephone world back to the single wire? It was given up. Telephone men surrendered and said, "We cannot do it." There the problem remains, and perhaps it may be settled in the future.

There is the problem of the universal code, which is the dream in the minds of the larger and older telephone men—how to fix it so that every necessary man can have a code number; so that every man who amounts to anything in the United States, and who belongs to the great system of telephony, can have a code number that will be permanent, so that any man who is an economic factor in the country can at once reach every other man who is an economic factor by looking at that book which shall contain this universal code.

How to improve the switchboard; it is still too expensive—it is still very complex. Nobody can help thinking as he looks at it that it is too complex yet. You know, most inventions are very simple at first, and then they get complex, and then they get simple. In reaping and binding the first self-binders, for instance, were very simple; then they got very complex, so that the big self-binders used to take four to six horses to pull them. Then they got very simple, so a great big mule could pull one of them. Now, it will be the same way with the switchboard. First it was very simple, now it is very complex. Some day it will be very simple.

Just one idea more. The telephone has taught the business world politeness. Telephony is the most polite profession in the world. It has taught us gradations and inflections of politeness that the courtiers of French palaces never knew. Nobody ever thought of the difference between "Who are you?" and "Who is this?" until the telephone girl came. "Who are you?"—that is impertinent. "Who is this?"—that is polite. There is a great deal of difference. Now the business world never thought of such things until the telephone world taught them. These little fine points of courtesy have gradually driven all the swearing, and all coarse talk, and all the abuse and profanity out of the business world. A man was not supposed to be a good business man thirty years ago if he could not talk roughly. Every business man was supposed to growl like Swinnerton's bull-dog—gr-r-r-r. To-day the business man is not at all like Swinnerton's bull-dog. He is a suave man; he is the man who uses the rising inflection; he is the man who thinks of the other man's side. The telephone has taught us the value of cooperation; it has put business on a higher level; it has almost feminized business in that sense; it has brought the Golden Rule into business; it has taught us what the public means, because the man who has the telephone is bound up body and business to the public and he cannot get away from it. He is a part of the public. He cannot deny it or escape it. He has to consider the public in what he does.

The public we are beginning to find largely because of the influence of the telephone—the public is just like the soil; it gives you back what you deserve. If you do not fertilize your farm you do not get anything back.

I have a little bit of a farm on the mountain

in the Catskills, and I tried last year to experiment. I took one piece of ground and I did not fertilize it. I grew corn one foot high. I took another piece of ground and I fertilized it, and I grew corn eight feet high. It was eight feet and two inches high, because I fertilized it. I treated it fairly. To treat the soil fairly is necessary; you cannot cheat it. It will not be cheated. The soil is the very best bookkeeper and auditor in the world. You cannot fool it. You cannot put up any kind of a frame-up on it. There is not a single Wall Street man who can beat an acre of ground. You cannot do anything wrong to it, and get away with it.

We are getting wise enough to admit that the public is just like the soil, and as we have scientific agriculture, so we are getting a new kind of scientific public culture. We have found out that the men and the companies that treat the public fairly, who let the public into the secrets of their business and throw the doors open, get the good will of the people.

We used to talk in the early days of science about the conservation of energy. Now in these later days of business we are talking and thinking about the *conservation of good will*, and we are finding out that *good will* is the best asset that we can have. Many corporations have discovered it, and they are discovering that this great fact is true, that we are all parts of one great community, and the telephone, the little simple gentle telephone, with a current so small that nothing in the world can measure it, is the tie-line that links man to man. I thank you very much for your attention.

Atlantic Coast Division J. R. ANDERSON, Division Correspondent

Atlantic City District. As a result of the unusual increase in the number of stations in Atlantic City, "The Old Vienna Cafe" on the boardwalk has applied for Bell telephone service. While this will probably seem of small importance to anyone not familiar with the local conditions, it is, however, very significant, considering the strong independent influences that have always prevented our service from being installed there. The proprietor has decided that he can better afford to replace some of the present equipment of the other company than to continually displease his best customers, who usually want to *Use the Bell*.

The Hotel Dennis has just completed a fire-proof addition involving an expenditure of about \$200,000. This will give the hotel about 440 sleeping rooms, making it one of the largest on the beach front. It is the intention of the hotel company to give its patrons every convenience known to the modern hotel man, necessitating the addition of 103 stations and a new No. 4 switchboard equipped with 460 lines. This provides a total of 381 stations, a telephone in every room or suite in the house.

Bridgeton Sub-District. Bidding at a public sale over the telephone is one of the latest uses an Elmer liveryman has found for his Bell telephone. He was informed that some particularly good wagons were to be sold at Dover, Delaware. The auctioneer, being a friend of his, called him when the wagons were put up for sale and he made his bids over the telephone, purchasing three.

During the past 12 months there have been signed 23 Plan "A" rural line contracts. Of these 18 are working and the other 5 are near-

ing completion. These rural companies are serving 15 communities which heretofore were without Bell telephone service.

Camden District. The following letter was received at the Camden district office and explains itself:

Woodbury, N. J., February 7, 1911.
D. & A. T. & T. Co.

GENTLEMEN:

With our last bill there came a card asking whether we were pleased with our service, etc.

I have for a long time been intending to write you in reference to the service we get here in Woodbury from your Company. It is excellent. The operators are alert, quick, not only willing but most desirous to please and accommodate the patrons of the office, or exchange.

I have on a few occasions asked what seemed to me to be rather in the nature of impositions, but was always met with a most cheerful readiness to accommodate, which pleased me greatly.

The service in every way has been most satisfactory, and these expressions apply to all connected with your Company with whom we have been brought in contact.

Of fault-finding you no doubt hear plenty; of praise not much. It gives me great pleasure therefore to be able to send you these few words of commendation and appreciation.

Very truly yours,

(S) J. M. WILKINS.

A Camden salesman sold service to a lady 55 years of age. She said that having lived so many years without a telephone that she thought it a luxury. A few days ago she was seized with an acute attack of vertigo and was able to call her physician, who, in response, made a hurried trip and gave prompt assistance.

Another Camden salesman superseded a 4-party flat rate store contract to a branch exchange, consisting of 8 stations and one trunk, measured rate. The management also ordered 2,000 toll coupon books.

Croxtown Dover Sub-District. The following rural lines have recently been added in the Dover Sub-District:

Company	Central Office
East Dover	Dover
Wilson	Lewes
Paradise	Felton
Shaunee Road	Milford
Milford Neck	Milford

An application for a branch exchange, consisting of 2 trunks and seven stations, has been signed by the Delaware Produce Exchange, Dover, Del.

Prince Trenton District. The following appeared in the Burlington *Enterprise*, issue of February 11, 1911:

"A millionaire is going to marry a telephone girl because she was polite to him over the wire. If any man should attempt to thus reward all the Burlington telephone girls who are patient and polite, he would have to turn Mormon."

The Riverside Traction Company, which operates a trolley line from Trenton to Camden, has installed along the line a private telephone system operated by means of portable telephone sets connected from the cars. Upon a recent occasion, a representative of the Trenton office was riding on a car which left the track. Immediately the private telephone system was thought of and efforts made to use it. The conductor after shouting "hello" and being unable to hear because of poor transmission, shouted, "Where is the nearest Bell telephone?" Bell service from a neighboring building brought the wrecking crew.

Our Plant men are still holding up their reputation for speedy work in emergency orders. A few days ago the office was called at 10.40 A. M. and informed by a subscriber four miles away of an immediate need for an extension station on account of sickness. By 12.45 the extension had been O.Ked.

Brown

Philadelphia Division

D. J. CLEARY, Division Correspondent

The Philadelphia Record of Saturday, February 18, printed an item in mention of a new use to which the telephone has been put. It stated that a resident of Freehold, N. J., was unable to attend a sale of horses in Philadelphia, but being acquainted with the man in charge he placed his offers by telephone and in that way made satisfactory purchases of eight horses.

Alfred Levy, directory advertising salesman, recently closed the largest single contract for renewal of advertising space that has been consummated up to the present time. It consisted of the Bergdoll Taxicab advertisements for the back cover page, "bolt," and colored page insert in all Philadelphia directories for the next two years.

Down Town District. Barber and Perkins, prominent wholesale grocers, recently changed from "Philadelphia unlimited" to private branch exchange service. In a letter addressed to the company they have stated their entire satisfaction with the new service and the manner in which all work was done.

Strawbridge and Clothier, the first department store to take up the free toll service plan for its customers, has realized so satisfactorily from this innovation that a number of supplementary features have been incorporated into the "purchase by telephone" advertising campaign. One of the latest of these is the page insert (both sides) issued in the current Philadelphia directory.

An idea that may prove of value to salesmen throughout the Company's territory is that now seen in the daily newspaper advertisements of Strawbridge and Clothier, of Philadelphia. Each day, in approximately the same location, there appears a brief paragraph calling attention to the fact that some article or other can be purchased by telephone as well as by personal trips to this department store. In order to give a clear idea of how this scheme is worked out, a typical "Telephone Suggestion," as they are called, is here reproduced.

Telephone Suggestions

Each Day a New One

A most interesting Sale of Books begins to-day and we hope you may come in and take advantage of it. If you cannot come in, TELEPHONE OUR BOOK STORE and be convinced that your purchase may be made as satisfactorily this way as if you were early at the counter.

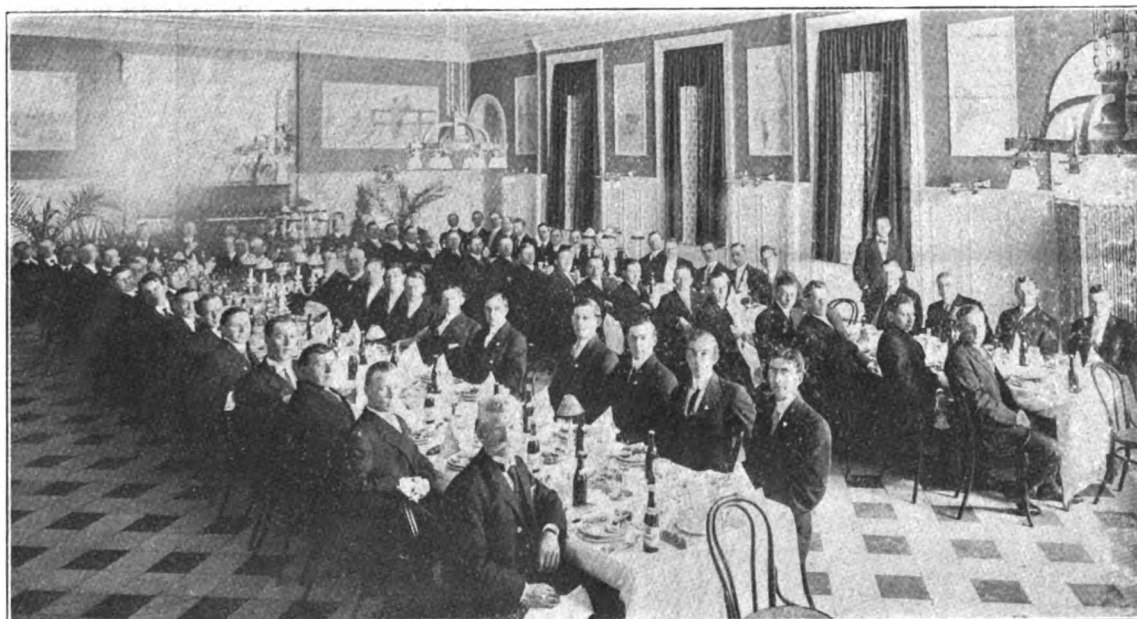
Such books from standard authors and in editions of recognized superiority have never before been sold at such prices, in fact some have never before been sold through book store channels.

Don't miss such values at such prices, for it is a money-saving occasion for the Book-lover, so 'phone us.

Telephone Strawbridge & Clothier
at Any Time

The reproduction indicates just how customers are instructed and influenced toward making more liberal use of the telephone in placing orders. Practically all departments are covered by these suggestions, which now have been appearing for over a month. The results from this advertising campaign have been highly satisfactory.

The Philadelphia Press of February 17 contained a news item mentioning the company's



Second Annual Banquet of The West Philadelphia Telephone Society, Continental Hotel, February 21
Attended by Seventy-eight Employees

preparations to build central offices in various suburban towns surrounding Philadelphia and elsewhere in the territory. Those to be built first, it was stated, will be located in Ardmore, Lansdowne and Pittstown.

Doylestown District. A meeting was held on January 19, 1911, at Silverdale, Pa., at which time a rural club, plan "A," of 10 subscribers was organized. Three miles of line has been built and 10 instruments installed, connecting the new subscribers with the Perkasio exchange in 11 days from date of organization.

The Cuttlossa Rural Telephone Company, 11 subscribers, was organized February 9 to be connected with the Buckingham exchange.

A subscriber at Perkasio, Pa., went to his stable recently at 3.00 A. M. and found one of his horses very sick. He walked three squares to a veterinarian, and after ringing the door-bell several times without any response, he remembered he had a telephone in his home. He returned to his own home, called up the doctor and had an answer in less than a minute.

At the opening session of the Warrington Farmers' Institute, which was held in the court house, Doylestown, Pa., February 13, District Attorney Wm. C. Ryan, of Bucks county, commented very favorably upon the telephone as one of the greatest assets to modernized farming. He stated that in his judgment it had done more than any other one thing to "keep the boys on the farm."

Norristown. The Publicity Department recently compiled a pamphlet for the combined Norristown and Doylestown districts containing testimonials from thirty-three agents of our rural telephone clubs. These pamphlets are found to be of great assistance to salesmen in canvassing for rural clubs.

North Philadelphia. The following note in appreciation of an installation job in a Diamond Street residence was received at the North Philadelphia office several days ago. The installer mentioned was C. S. Aldred:

Dear Sir:—I wish to tell you how pleased I am with my telephone. I wish also to congratulate you in having such a fine representative and such skillful workmen.

They placed the wires so carefully that one could hardly tell there was a telephone in the house. If all business houses had such industrious men there would be more business done.

Owing to the vast increase in business in this district it has become necessary to relieve the Poplar and Tioga central offices. The Diamond central office switchboard is being increased by 15 "A" and 4 "B" positions to accommodate 1100 lines from "Poplar" and 500 lines from "Tioga" to be cut over in May.

The cable department is rushing a 330-pair cable to Logan, a distance of 11,445 feet, in order to take care of the demand for service in this comparatively new district.

During the past month this district has had an average of 50 applications daily. This is not private branch exchange work, but new subscribers to the universal system.

Another letter of appreciation recently addressed to the North Philadelphia district manager reads as follows:

Dear Sir:—Between 9 A. M. and 10 A. M. Monday the 6th inst., we called your office, asking to have a telephone installed as promptly as possible in the residence of our Mr. H. E. Carver, 2252 N. 19th Street, which was under quarantine on account of scarlet fever. About 4 o'clock of the same day we received a call from Mr. Carver over the newly installed instrument. This exceedingly prompt service may be an every-day experience with you, but to us it seemed so remarkable that we feel impelled to express to you our appreciation and sincere thanks for such service on the part of yourself and your able corps of assistants. It was a great favor to us under the circumstances.

Again thanking you, we are,

Very sincerely yours,

C. R. CARVER CO.
Garwood

West Chester. The West Chester rights of way agent, coming to West Chester on a train recently, began conversing with the conductor. The conductor happened to have a case of severe illness at his home; the agent pointed out the advantage of a telephone at just such a time, and signed the conductor for service.

A subscriber in an outlying town in the West Chester district called the chief operator and was very indignant, stating that she was charged with Philadelphia and Wilmington calls. The chief operator told her that she would investigate and charge the messages to the proper persons. The subscriber answered, "Oh, we made them all right, but if you will look in your directory at head of the subscribers in our exchange you will see that it says 'continuous service.'"

The West Chester Plant school held a meeting January 19, at which "Cable Construction" was discussed.

Greenfield



==
A
Wheeling,
W. Va.
Druggist's
Window
in Which
the Telephone
Receives
Excellent
Publicity
==

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Pittsburg District. Not long ago the cashier of the Down Town Commercial office had an experience with another corporation which convinced him that the filing system in use by the other firm was a pretty good one. The cashier called the Pittsburg office of the St. Paul, Los Angeles and Salt Lake R. R. Co. The call concerned the payment of a bill and was placed on February 8, at 10.30 A. M. The railroad cashier said he didn't recall the circumstances, but he would find out. He also explained that the bill was on file in Los Angeles. The railroad cashier telegraphed Los Angeles and the cashier in that office went through the files, traced the matter to the office of the railroad treasurer, where it was learned that a check had been written, but a delay had occurred in the mailing of it. This information was telegraphed to the Pittsburg office of the railway company. The cashier at that office then called the Pittsburg division cashier at 1.30 P. M. This particular employee has figured it out that about 5,552 miles were covered in two hours and 45 minutes. How much time was used in searching the files is not known, but it is safe to say that not many moments were wasted at the Los Angeles end.

The Pittsburg Plant School has been running a course of correspondence instruction for about two years and during that time has handled hundreds of papers.

"How do we hear?" is a question that appeared in one of the papers.

To this question the following reply was received:

"Sound-waves that enter the external auditory meatus vibrate the tympanic membrane and are transmitted by the ossicles, which vibrate as a whole, to the perilymph of the internal ear. The vibration of the perilymph is transmitted to the endolymph of the membranous labyrinth, where it takes effect on the terminations of the auditory nerves. The eustachian tube, a communication between the middle ear and the pharynx, equalizes the pressure on both sides of the tympanic membrane, thus facilitating vibrations of the tympanum."

Greensburg District. Manager W. D. Sechler and his salesman, F. A. Mayer, of the Johnstown sub-district, made the initial canvass for the proposed Beaverdale, Pa., exchange, and 59 applications were obtained in three days' canvassing. The Beaverdale exchange will open with 65 stations.

Over a year ago a salesman took an application for rural line service to connect with the Blairsville, Pa., exchange. It was necessary for the man to set 15 poles. Six months later the salesman called and found that only 3 poles had been set. Six months later one farmer communicated with the salesman to the effect that he was ready for service. The telephone was installed. Now the subscriber, after having waited a year for his service, is so pleased with it that he says he couldn't get along without it.

A hardware company at Indiana, Pa., was recently burned out. It took a temporary office and had a "Bell" telephone installed. The other day a member of the firm called up the local manager of our Company and said the new store was ready and the temporary telephone should be moved. In less than an hour telephone service was established at the new quarters.

An application has been received from the A. E. Troutman Company, Greensburg, for private branch exchange service. The equipment is to consist of 2 trunk lines and 6 stations, to be operated by a cordless switchboard.

The Plant Department at Greensburg recently completed the installation of a private branch exchange in the Hotel Rappe. It consisted of 2 trunks and 72 stations.

A Latrobe, Pa., merchant, who is also a "Bell" subscriber, recently placed a quarter-page advertisement in a local newspaper informing his patrons of the advantages to be derived from shopping by telephone.

A salesman at Bedford, Pa., recently received an application for telephone service from a man who is a large stockholder in one of the opposition companies in Bedford County.

A Greensburg salesman holds the unique distinction of obtaining on an application the signature of a prospective subscriber while in a coal mine.

The following applications for private branch

exchange service have been received in this district during the month of February: Westmoreland Grocery Company, Greensburg, Pa., 2 trunks, 10 stations; L. Keck & Co., men's furnishers, 2 trunks and 5 stations; Grand Central Hotel, Johnstown, 2 trunks and 6 stations.

Over 13,000 directories are being distributed throughout this district. The directory covers all Bell and sub-license subscribers in the following counties: Westmoreland, Cambria, Somerset, Indiana and Bedford. **Hugus**

Wheeling District. The Follansbee, W. Va., exchange burned February 11. The fire broke out at 5 P. M. and destroyed the switchboard, and 80 lines were put out of commission. A new board was shipped from Pittsburg by the Western Electric Company. It was set up and service resumed at 1 P. M., February 12.

Many rural companies have recently been connected with "Bell" service in the Wheeling district. Among these companies are the following: The Lower Salem Farmers' Exchange Company, operating an exchange at Lower Salem, O., and having 187 subscribers; The Stillwater Company, operating an exchange at Deersville, O., and having about 150 stations; The Riverside Company, of McConnellsville, O., operating 7 exchanges, with 1,750 stations. The last-named company will give connections with 1,200 additional stations. A large portion of this territory was not reached by Bell lines up to the time these arrangements were made.

The new exchange at Shadyside, O., in the Wheeling sub-district, which is to be placed in operation this month, has about 50 subscribers.

Healey

J. A. E. Hoeveler

In the death of J. A. E. Hoeveler, of Pittsburg, one of the most widely known expert electrical engineers in the country is lost to the science. It is interesting, according to a local paper, to recall that Mr. Hoeveler was sought out, because of his reputation as an electrician, by Alexander Graham Bell on his first demonstrating trip to Pittsburg. The young Mr. Hoeveler was immediately engaged by the inventor to assist in his demonstrations of the telephone. Mr. Hoeveler died at his East End home February 6, 1911, at the age of 55.



The lower end of Pittsburg, known as "The Point," is extremely susceptible to floods. In 1907 the worst affair of this kind occurred and Plant employees of The C. D. & P. Telegraph Company went to their work in boats. Elevators in the Fulton building were stalled and the Plant men were obliged to climb 13 flights of stairs in order to reach the office. The accompanying photograph was taken on Sixth street, in front of the Fulton building.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

MARCH 15, 1911

NO. 6



View of the Central Portion of Harrisburg, Showing, from Right to Left, the Soldiers' Monument, Several of the More Prominent Church Buildings, Capitol Hill with the main State Capitol Building, and in the Left Background a Part of One of the City's Industrial Plants

HARRISBURG

A City That Has Done Great Things in a Decade



HARRISBURG, ten years ago, might well have been termed a sleepy town, a place of lost opportunities, a city blind to its own possibilities.

As a matter of history, appearances at that time would have amply justified a stray critic in thus scoring the capital city of Pennsylvania. On the surface it was lethargic, afflicted with the peculiar form of commercial paralysis that often cripples a city in which lawmakers convene. Its citizens were inclined to take things easy and to be satisfied with what business came their way. They waited for things to turn up. Just so they were not aroused from their stupor

of dull content—that seemed to be the common wish.

It is rather interesting to glance back at a few figures of that period. In 1900, for instance, the city's population was a scant 50,000. It had one park, embracing about 30 acres. Only $4\frac{1}{2}$ miles of paved streets were then in existence and 87 street-miles covered the length of all streets paved or unpaved, and whether deserving the name or not. Figures of the same calibre might be quoted at length. These, however, with the one additional item that *there were but 1037 Bell telephones in the city at that time*, are sufficient to sketch general conditions.

But at the very moment when justifiably caustic remarks might have been made there were forces at work in Harrisburg. They were beneath the surface, as yet; but they were forces that, rightly applied, are irresistible—brains and money. Prominent citizens were beginning to see things in a new light. Slowly it was dawning on them that their city did not occupy the

position in the world that it ought. Its physical makeup was deficient, its industries somnolent; its general air of languor, in short, was so apparent that traveling salesmen shrugged their shoulders at the thought of trying to do business there. For the first time all faults were fairly recognized and squarely faced. Among the business men a more progressive element came to the front. It was they, in fact, who gave life to the new movement—the movement that was to make over a city.

As a result of informal but none the less effective discussions of needs there came the formation of the Municipal League of Harrisburg. Its membership included practically every public-spirited man in the city, and its object—Greater Harrisburg. Ten thousand dollars in cash was contributed by members for working plans. Experts skilled in their several vocations were engaged to plan a park system, a plant to filter the city's impossible drinking

(Continued on page 5)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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Managing Editor, R. H. HAVENS, 1230 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - - - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII MARCH 15, 1911 No. 6

A Million Dollars a Day

A MILLION dollars a day! That is the stupendous sum which a famous attorney stated that the railroads of America could save if their management were put on an economical basis. He had information, so he asserted, which would prove that startling statement.*

There was recently proposed a Congressional act which would increase the

postage receipts on magazines by millions of dollars a year. The amount is so great that *two* of the thousands of magazines now passing through the United States mails would be required to increase their combined postage expenditure by \$900,000 a year. Experts even go so far as to claim that if the entire postal department were thoroughly reorganized on a modern business basis, such as is followed by the more successful corporations, the annual saving would not only be greater than the annual postal deficit, but would more than balance the amount which the proposed postage increase would total.

Millions of dollars have lately been saved to the country's consumers through the use of proper machinery in the great lumber regions of the northwest. It is stated that the use of band saws instead of the old style circular saws have effected savings in the kerf alone sufficient to pay the total expenses of the mills. In the great meat-packing houses the utilization of by-products from material formerly destroyed has in recent years made millionaires of the foremen and helpers who devised the means of saving these goods. In our own Company certain men owe their present responsible positions largely to definite exhibitions of personal interest in

comparatively minor affairs. The resultant savings in some instances have surprised even the originators.

In a commercial age with strong brain competition we are prone to overlook small economies. A single individual with strong will-power may practice economy with comparative ease. A group finds difficulty in working together in this particular because what one would genuinely consider economical the others would term inefficient and unsatisfactory. As the group grows in number the adoption of a practicable course toward this end becomes more and more complex. Economy is too little practiced but the subject is much discussed—a proof in itself that it is of greatest importance.

Economy is largely a matter of education and self-discipline. The longer true economy is practiced the greater the results and efficiency. If we attempt to draw arbitrary lines and say that certain actions are wasteful, we are apt to misjudge the purposes for which they are intended.

There are numerous kinds of lesser economies which, if practiced by many employees, become of great importance. For example, in transporting material and men, our combined Companies now use perhaps 250 horses daily. At noon meal each of these animals may receive, among other things, six quarts of oats. If through the use of poorly designed feeding receptacles, two quarts of each lot of feed falls on the ground each working day the loss (an average loss) at the present market prices is \$2,350 a year. The loss is borne by the Company whether the animals are owned or hired because of lessened efficiency. Short rations cause poor work. It has been stated that the loss in three Eastern States from this source alone would pay the salary of the country's Chief Executive and his Cabinet.

Are we all considering such items as the saving on oats?

Perhaps our engineers are our most noticeable economists, for their decision on the use or disuse of various parts of the plant involve thousands of dollars in expenditures. Consider this one example. Some time ago our engineers undertook the problem of better artificial lighting with the result here given: "By substituting one tungsten lamp for an average of every four 'carbon' bulbs, it is possible to have better light and to save at least \$50,000 annually. In Philadelphia alone, \$4,500 has been saved in the last year." And all this is in the face of the fact that "tungstens" cost about \$1.50 per lamp, while "carbons" cost nothing. This is the sort of double-barreled thinking that means long strides in economical progression.

Why should not each employee be an "economist engineer," regarding everything which he uses in the interest of the Company?

A great deal of thought has been given to the standardization of materials and methods which effect large numbers of employees in their routine duties. Then, too, should not the individual employee give more thought to the standardization of his own particular duties so that less time and effort may be required to complete them, thus freeing his attention and effort for other and more broadening duties? He cannot increase his own efficiency without aiding his associates in the business. Obversely, if any man is inefficient in promptness, in thoroughness, in accuracy, or in any other particular, he is a clog in the machinery which is attempting to furnish good service at moderate rates.

The answer will come only by these things: first a self-analysis by *each* employee of *his* conduct of *his* particular job and then to so apply the experience thus gained that he and his assistants may do their parts toward bringing about the desired result.

It is perhaps easier to illustrate this by citing instances of lack of economy.

We are NOT ECONOMICAL

- 1) When we are unsystematic;
- 2) When we adopt systems of schedules, records, and files misproportioned in actual value to cost of preparation and maintenance;
- 3) When we use the most expensive method of travel *provided* another would answer every purpose. [The taxicab is economical for certain purposes and the same may be said of the Pullman car.]
- 4) When we require two helpers, two trips or two hours to do the work of one;
- 5) When we have work to accomplish and postpone it until so late that extra efforts are required to complete it on scheduled time;
- 6) When we are aware of wasteful practices and do not take measures to correct them.

For those who think that none of these instances apply to them we have added a "brass tacks" list:

- a) Keeping lax business hours;
- b) Failure to maintain emergency location information when absent;
- c) Careless use of teams and other vehicles;
- d) Thoughtless use of mail, express, freight, "package" and messenger delivery;

(*Hampton's Magazine for February, 1911.)

- e) Personal trips to accomplish subordinate's work;
- f) The rush habit regarding ordinary installations;
- g) Oversupervision on inexpensive jobs;
- h) Too few estimates of cost on all jobs worth the effort;
- i) Failure to sell where there is plant;
- j) Careless minimizing and handling of junk;
- k) Undecipherable writing — especially signatures;
- l) Incorrect answering of the telephone;
- m) Figuring on engraved business cards;
- n) Side-tracking advertising matter intended for immediate distribution;
- o) Local purchases of stationery and other items;
- p) Lack of judgment in handling forces of assistants;
- q) Over-stocking supplies;
- r) Special reports costing double their actual value;
- s) Unitemized vouchers;
- t) Use of engraved paper for interdepartment correspondence;
- u) Failure to educate assistants to feel responsibility;
- v) Underselling good prospects;
- w) Unstudied approach;
- x) Telephone and personal visiting during working hours;
- y) Injudicious expenditures of Company money as if they were distinct from our own interests;
- z) Wasteful toll line usage.

Careful consideration of these points will show that nearly all of them are faults of *omission* rather than *commission* — a common failing with us all.

Obviously there are always two sides to be weighed whenever economy is considered. It must be shown that a new or a changed method is needed and that the plan proposed will accomplish the desired end.

Criticisms are of the greatest worth when accompanied by suggestions. Be constructive in thought and be economical in practice.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. During the five weeks ending February 11 Hess Brothers' Department Store, Allentown, Pa., had 1,066 calls over the leased line installed between their store and our Bethlehem, Pa., central office. The manager of this department store stated that in one day 55 calls were received from Bethlehem subscribers, 47 of which resulted in orders.

As a specimen of right methods for a rural company that is determined to grow, the postal cards issued by the Lower Saucon Telephone Company are worthy of note. These cards follow the form of a similar one used by this Company, and simply state:

"I Now Have . . .

Lower Saucon
Bell Telephone Service
Call me up.

USE THE BELL

My number is

Name

Address

The value of Suggestion Books in this district is readily seen from the following:

A suggestion slip was sent to the Commercial Department stating that a coal dealer complained of having too many people on his line and that one of them, a butcher, during certain hours in the morning received so many calls that it was impossible to reach his telephone. A salesman called on the butcher and was informed that he had decided to have his Bell telephone removed and opposition service installed. The salesman induced the butcher to sign an application for a direct line and obtained a residence telephone application. At the same time the butcher referred him to another man who was having the same difficulties. The salesman induced this subscriber to apply for a direct line. The salesman next called on the coal dealer, where he was informed that the Bell telephones in his office, residence and clerk's residence were about to be ordered out and opposition instruments installed. The salesman, however, induced him to sign for a direct line in his office and to retain the other telephones. As a result of this one suggestion slip the Company has increased its revenue \$81.00 per year.

A No. 1 private branch exchange was installed last September in the Moravian Seminary at Bethlehem, Pa. In an interview at his business office recently Dr. Clewell expressed himself as being fully satisfied with the system and said it was wonderful what the intercommunicating feature accomplished for him in the way of saving time, as it is a great help in directing his affairs.

As a direct result of recent toll development efforts in this vicinity Wetherhold & Metzger, the Hinterleiter Company and M. S. Yound & Co., all of Allentown, have closed contracts for better grades of service.

Reading District. The following letter has been received from the Secretary of the Berks & Lehigh Telephone Company, a recently organized connecting company:

KEMPTON, PA., March 3, 1911.

BELL TELEPHONE COMPANY OF PENNA.,
Reading, Pa.

Gentlemen:

We wish to express our satisfaction with the courteous treatment which we have received from your

Company and their employees in the organizing of the Berks & Lehigh Company. Upon first organizing we did not expect to get over 50 subscribers, but at this date we now have connected with our system 145. We are using a Western Electric switchboard which is giving excellent service. Any community desiring telephone service need not hesitate to leave the organizing of their telephone Companies in the hands of the Bell Company's employees.

Yours truly,
WILSON KUNKLE,
Secretary.

A salesman for the National Biscuit Company, located at Shamokin, recently obtained Bell telephone service. He claims that he now saves himself two long driving trips into the farming district every week by using the various rural lines connecting with the Shamokin exchange.

The Kline-Eppihimer Company, of Reading, has ordered 10,000 coupon books to be used in connection with its mail order department.

Scranton District. A former opposition subscriber used the Bell long distance lines with such satisfying results that he voluntarily signed an application for Bell service. A few days after the installation was made he called at the Scranton commercial office and requested a clerk to draw up an application for direct line service, stating that he wanted to deliver it to a neighbor for signature. The request was complied with and he returned the signed application promptly, saying his neighbor was also replacing the opposition with Bell service.

One of our representatives in the Honesdale district recently secured two applications to cover service in the town of Hawley, due to the prompt "Telegram" service received. These applications are to replace opposition service.

A prominent Scranton subscriber several days ago placed four calls with our operator at 9.45 P. M., saying he wanted to catch a train at 10.00 P. M. At 9.55 P. M. he called the chief operator and thanked her for the prompt and courteous service he had received, stating that he had talked on the four calls and still had plenty of time to catch his train.

A banker in Carbondale had been interviewed a number of times in reference to signing an application for Bell service, but our representative was unable to secure his application because he did not want to incur any additional expense. The salesman obtained a list of the different business houses and residents with whom the banker transacted business, and made a personal visit to the most prominent member of each. With these persons he left a number of post cards (Form 1156), requesting them to mail one daily to the bank. Thinking it would be advisable to allow at least one week to elapse before calling again, the salesman waited a few days, but before his next visit the banker requested that our representative call. He did so, and obtained an application for one direct line with main and extension stations.

Wilkes-Barre District. Hazleton, Pa., is to have the largest office building in Luzerne County. It is being constructed by the Markle Banking and Trust Company. The structure is fireproof throughout and will contain 150 office rooms. Telephone conduits are being run through the entire building and are modern in every particular. Two main conduits will be furnished, one for Bell and one for opposition service. The building will be served by a 100-pair underground cable. The bank with its several departments will be connected with a No. 1 private branch exchange, the switchboard and equipment corresponding with the rest of the interior finishings.



Interior View of Harrisburg Filtration Plant, Located on Independence Island. [The first of its kind in this country.]



New Concrete Mulberry Street Viaduct, Connecting Business Section of Harrisburg with Residence Section Known as Allison's Hill

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic City District. While canvassing for multi-party line service in the rural section surrounding Dennisville one of our salesmen had an unexpected opportunity to demonstrate the value of the "emergency" feature of telephone service.

As he was passing a saw-mill the steam boiler exploded, demolishing a portion of the building and injuring two workmen. The salesman ran to the nearest telephone and called the only physician in the town. It was found that the doctor was visiting patients at Goshen, a village four miles south of Dennisville. The salesman, mounted on a motorcycle, made a record run to Goshen, and brought the physician to the scene. While all this was done without the loss of a moment's time, the fact that it could have been accomplished in half the time by telephone was so apparent that the salesman obtained three applications for service and has four immediate prospects.

In Cape May County, on March 1, 1911, there were 1,700 Bell telephones, a gain of 400 in exactly a year, due largely to the fact that a number of closely associated groups of towns have been included in newly-formed local service areas without toll charges.

In Ocean City the local service area is responsible for six new lines, reaching a group of towns near that place. Ocean City itself gained 170 stations in the above period. From that exchange the subscribers have free service to the Atlantic City office of the Western Union Telegraph Company for the purpose of sending telegrams. Ocean City's 2-position 200-line magneto board of seven years ago would be quite out of place when compared with its present 4-position 40-trunk, 800-line common battery board. The number of employees has increased from 2 operators and a trouble man to 4 operators, a wire chief, foreman, installer and salesman.

The experience gained in superseding obsolete contracts to standard rates has been valuable. In addition to securing standard rates on present equipment much additional service and equipment has been obtained. Many instances of such gains in this district could be cited. Among them was a case closed yesterday by our Pleasantville salesman. The prospect was a physician who had used a four-party line at an obsolete rate for ten years. Henceforth he will use a branch exchange with 5 stations.

Avia

Bridgeton District. A line has been run from Newport to Port Norris connecting Newport subscribers with the Port Norris exchange.

In speaking of his telephone service one of our Cedarville subscribers said: "We could not have more accommodating operators than those in the Cedarville office."

The agent of a rural company called one of our salesmen to tell him personally how pleased he was at the low cost of building the line and how satisfied he was with the service. In closing he said: "If it had not been for you our people would still be without service."

A Bridgeton merchant recently stated that he had sold over 1,500 bushels of oats over the telephone in the preceding three days.

Lore

Camden District. In the last few weeks there have been removed in the city of Camden 56 poles, 250 crossarms, 6,000 feet of aerial cable and about 240 miles of open wire, all due to the fact that our underground plant is now handling this service. The operation is progressing to such an extent that poles on our main thoroughfares will soon exist only in history.

The Gloucester central office switchboard has been equipped with 60 additional drops in order to accommodate the increasing demand for service. Our Woodbury central office switchboard has also been given 80 additional drops, and with the standardizing of contracts going on and the superseding from party lines to direct lines much of our extended facilities will be used at once.

A barn in Woodbury, N. J., was destroyed by fire February 24. Almost as soon as the alarm was given one of our men was on the ground. A loop serving 2 subscribers was burned and parted, and before the fire was extinguished our man had O.K.'d their service.

During the month of February the Company removed, in the city of Woodbury alone, 15,000 feet of aerial cable, forty 45-ft. poles, 3 tons of copper wire, 9 cable boxes, 1,435 lbs. of dead cable and 1,700 feet of strand. This case is being commented on extensively by the townspeople; they realize the benefit derived from underground plant and rear-property distribution.

Croxtan

Dover Sub-District. A woman in one of the lower counties of Delaware signed an application for "four-party" service. The telephone was duly installed in her residence, and the other day a friend who had called to see her asked if she, too, had taken that "troublesome 4-party service." The new subscriber glanced toward the instrument, and replied that she wasn't sure, but thought not, as there were only two bells on the telephone.

There is a telephone on the desk of the President of the Senate now in session in the new State Capitol building at Dover, as well as on the desk of the Speaker of the House. Much time is saved that formerly was wasted by the carrying of messages between the Senate and the House.

A rural subscriber to multi-party service recently remarked, when asked how the service was, that he would have no complaint at all if his neighbors' daughters didn't hold the line for social calls, if the good wives along the line didn't monopolize the whole evening telling each other the best way to make ginger cookies, if babies were not held up to the telephone for "hours" at a time for the purpose of talking to a fond father who had been detained, and last, but not least, if Willie ——— didn't leave his receiver off while he practiced on his cornet. [This subscriber is fast being educated by other subscribers to a better grade of service.]

Prince

Doylestown District. Work is progressing rapidly on the line of the Ferndale Rural Telephone Company, Ferndale, Pa. At present about 200 poles have been set. The Company have applications signed for 35 subscribers, and it is expected that by the time the line will be put in operation this number will have increased to 50.

Word was received February 10, by telephone, from a subscriber at Yardley, Pa., stating that several members of the family were ill, and it was requested that an extension set be placed at once. The Plant Supervisor at Trenton, N. J., was communicated with, and a salesman and installer started at once for Yardley. In approximately one hour from the time the request was made the salesman was having the application signed and the installer at the same time was completing the work of the installation.

Hennessy

Trenton District. A representative of the Company overheard a man calling "Telegram" over an independent company's line. On interviewing the man, our representative ascertained that he had not been able to get "Telegram," but the independent operator had advised him to use the Bell.

An inconsistency which is common among party-line subscribers came to the notice of the District Manager recently when he was telephoned to by a woman who complained of the heavy usage of the wire by other persons and the long waits to which she was subjected. After quite a lengthy explanation of her case, she asked the Manager to wait a few minutes until she answered her door bell, which she heard ringing.

Brown

West Chester Sub-District. The S. Austin Bickling Paper Manufacturing Company at Downing-

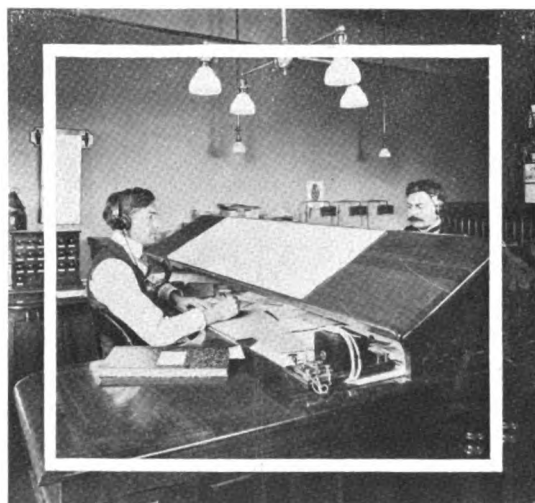


One of 30 Bell Telephones in a Harrisburg Modern Department Store. This Firm Allows its Patrons the Unlimited Use of its Telephones for Local Messages

town has changed from 4-party service to a monitor cordless switchboard with 4 stations. Also, 2-party line telephones were obtained in connection with this equipment to be installed in the residences of the manager and the three members of the firm.

An application has been obtained from the Rockwell Manufacturing Company during the private branch exchange service with 5 stations.

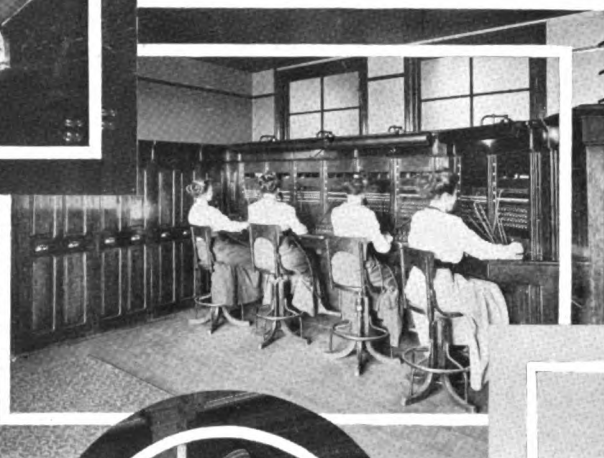
Greenfield



Upper—Operating Room of P.R.R. Telephone Equipment at Harrisburg

Lower—Unique Use of Bell Telephone in Train Shed. Usher Announces Trains When Notified by Station Master

Corner in P.R.R. Train Dispatching Office—Union Station, Harrisburg—Showing One of the Morse Instruments Now Entirely Replaced by Western Electric Telephones



HARRISBURG

A City That Has Done Great Things in a Decade

(Continued from Page 1)

water, an adequate and sanitary sewerage system, and in every way to pave the way to future greatness.

The work was undertaken in the right spirit. Graft and grafters were forced out and methods of economy and efficiency injected into the campaign. As the workers delved into their problem they became quickened, alert, enthusiastic; eager to seize upon each new possibility.

The proposition succeeded from the start. At the February, 1902, election the progressive faction put through, with a most gratifying vote, their comprehensive improvement plan and a loan of \$1,090,000. This was the beginning. The end?—it is not yet in sight.

There is an interesting point in all this. It is ten years since the Harrisburg plan was first promulgated. Without exaggeration it may be said that practically every corner of the United States has heard, in some form or other, of the work that has been done. Local newspapers have circulated the story, leading magazines have devoted space to it, and lectures by the score have been based on its lessons. All told, the glare of national publicity has illuminated every step of its evolution. This is the unusual thing—so far all of the proposed improvements comprehended in "The Harrisburg Plan" have been carried out in accordance with the original ideas without the slightest suspicion of graft or serious criticism of methods.

To review in detail the various plans that have been consummated would be an undertaking quite beyond the scope of this article. A few of the more important moves, however, may be touched upon. Assuredly mention must be made of Harrisburg's filtration plant. A decade ago such a thing was merely a dream, a vague wish. Most people thought the beautiful Susquehanna River, from which Harrisburg's water supply is drawn, would always be noted mainly for its scenery, and few ventured to hope that one day pure, sparkling water would

flow from it to their homes. To-day this is a reality. The city early turned its thought to methods by which the water might be made dependable for both clarity and purity, and in 1905 was completed a model filtration plant—the first of its kind in the country. Three hundred thousand dollars was paid for it, but it was an invaluable addition. From the very first moment of operation it has been a success. The plant now supplies daily 12,000,000 gallons of clear, pure water to Harrisburg homes.

At this same time the city's streets came in for considerable attention. They were in a deplorable condition. As before stated, but 4½ miles of paving had been laid. The new policy changed all this. Competitive bidding was inaugurated and an immediate start was made to pave all of the more important streets of the town with sheet asphalt. From 4½ miles in 1900 the paving mileage has grown to the length of 44 miles—an increase of nearly 900 per cent. At present the work is being rapidly pushed out into the suburbs. Before ground is broken for a single home streets frequently are splendidly laid with asphalt. Building operations, as a matter of course, follow this attractive inducement.

Again, from the solitary park of 30 acres that existed at the beginning of the new era has grown a system of parks, public playgrounds, bathing reservations, tennis courts, athletic fields, outdoor gymnasias, golf course and a 20-mile parkway encircling the city. To-day the grounds reserved for healthful recreation and exercise in the city limits include 995 acres—of full-fledged parks there are 11. The remarkable percentage of growth is apparent at a glance.

This really magnificent system of parks, drives and playgrounds, it should be noted in passing, does not represent any stupendous or burdensome outlay of the city's funds. On the contrary, it simply means that through the foresight of those in charge of Harrisburg's development along this line natural scenic attractions have been utilized to the utmost. Sections adjacent to parks were early secured, and private citizens by the dozen have donated desirable land for the enhancement of the system. By these means Harrisburg, for a comparatively few thousands of dollars, has acquired a chain of public grounds for which many another community has disbursed millions. It is indicative of the spirit in which the whole work has been prosecuted.

Harrisburg's schools have always ranked with the best. The buildings, especially those of recent construction, are of tasteful architecture and ample capacity. The Central High School

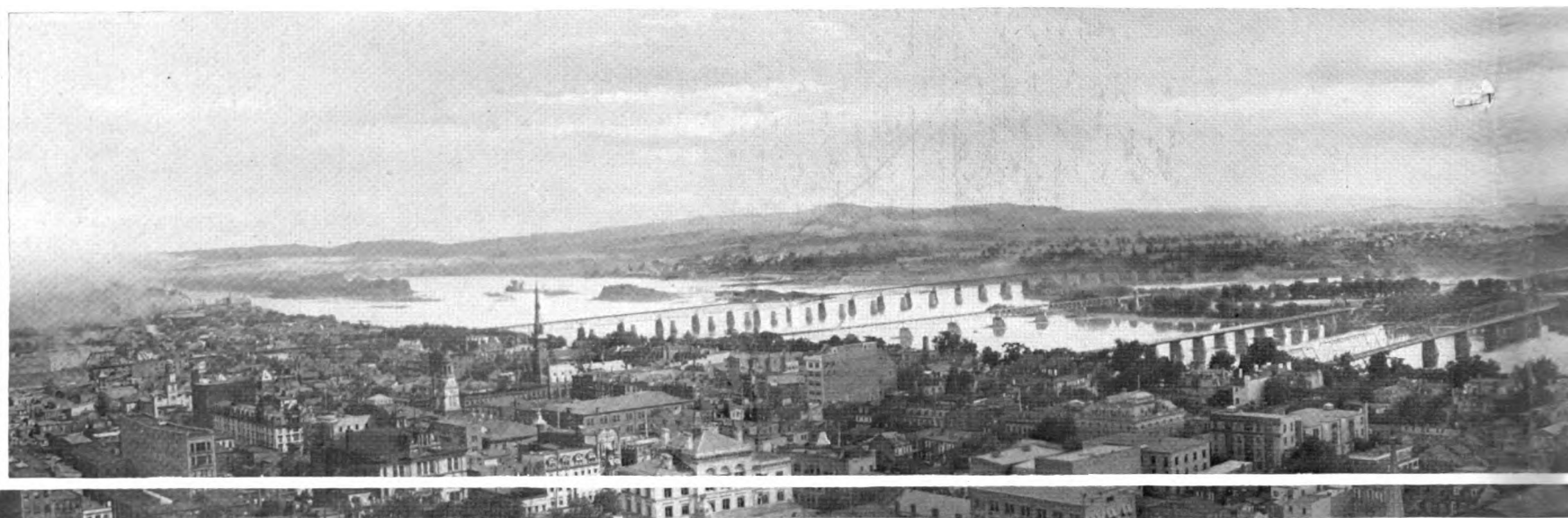


P. R. R. Depot at Harrisburg with Wireless Antennae

accommodates approximately 700 male and female students, and prepares its pupils for practically any college in the country. The new Technical High School, now in course of erection, will be a monument to the local school authorities and a decided ornament to the city. When completed it will be one of the most perfectly planned and equipped buildings of its kind in the United States.

State and municipal public buildings have had much to do with the uplift of the city. Those on Capitol Hill are naturally the finest of their kind in the State. Moreover, in the magnificent new main building, dedicated by Theodore Roosevelt in October, 1906, the city has a possession of a grade of splendor seldom seen outside of national centers and old-world show places. Capitol Park, the beautiful 16-acre plot of ground set aside by John Harris, the founder of the city, for the purpose it now fulfills, forms a setting for the buildings it holds comparable with the most famous public reservations of the country. And there are other handsome structures in various sections of the city of almost equal importance and beauty. Among them are the Roman Catholic Cathedral, the Young Men's Christian Association building, the Board of Trade building, the State Arsenal, the Harrisburg Hospital and a number of other edifices housing both public and private enterprises. All of these have a real part in raising the tone of the community at large.

These, then, are a few of the more prominent ideas that so successfully have been worked out in the last decade. They are probably the ones which would appeal to the ordinary business man who now comes daily to the city to investi-



Panorama of Central Part of Harrisburg, Looking South-west from Capitol Hill, Showing Bridges C

gate the widely circulated story of its wonderful growth.

A telephone man, however, would look for a phase as yet unmentioned. He would want to know what the city's telephone growth has been.

This is the answer. The local evolution of the telephone business has been the same as everything else, only—in the vernacular—"more so." Harrisburg's telephone development in the last decade has not only kept up with the general advance; it has set the pace throughout. The increase in the number of Bell telephones connected with the Harrisburg exchange has been phenomenally steady and steadily phenomenal. The total number of subscribers in 1900 was 1037; at the end of 1910 there were 6034. These are rather startling figures. They tell one truth that should not be missed—Harrisburg, in its new life, appreciates the value of telephone service just about six times as much as it formerly did.

Furthermore, as in every other branch, the city's telephone development has been logical—not of the over-night, mushroom variety. It is the sort of advance that does not retreat. And the field for future telephonic cultivation is broad and fertile. The conditions are such that one can hardly imagine how Harrisburg could stop growing, even should it wish to do so.

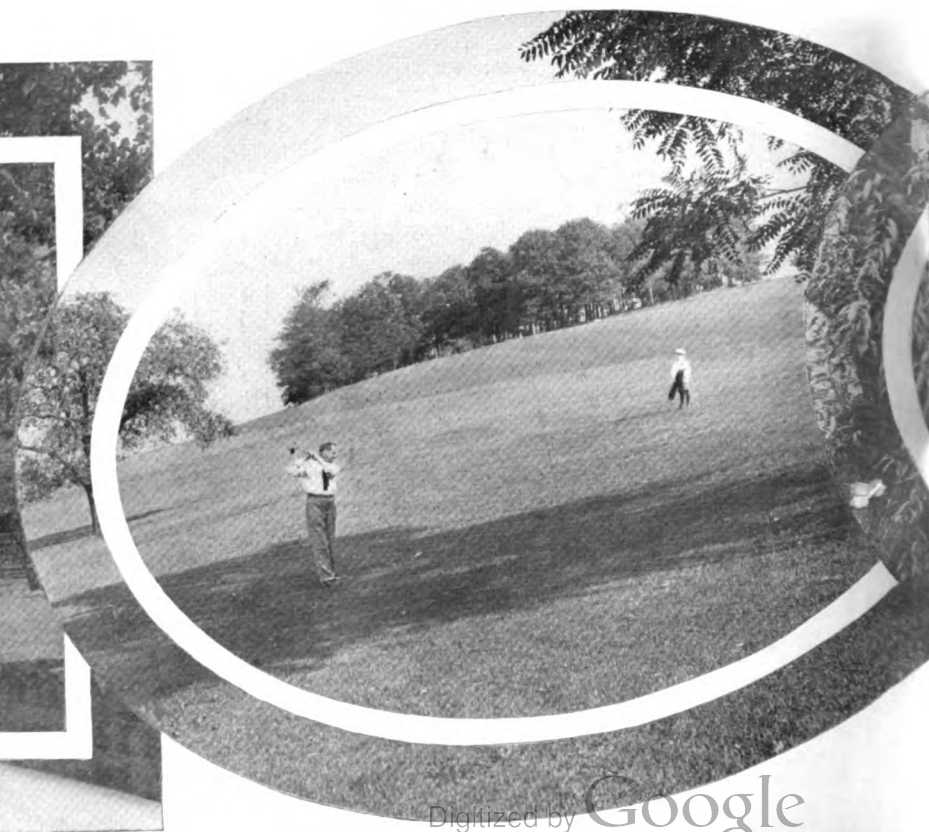
The very geographical location of the city is in its favor. It is peculiarly situated in the narrow but scenically beautiful Susquehanna Valley, and at the confluence of the famous Cumberland and Lebanon Valleys. It is just on the outskirts of the State's coal fields, midway between Pittsburg and Philadelphia and in the heart of rich manufacturing and agricultural sections. A glance at an atlas will disclose these facts in a strikingly graphic manner, and at the same time it will be seen that Harrisburg is really the arch of the Keystone State.

That this is recognized by the great manufacturers of the land is evidenced by the mammoth storehouses they maintain here for convenient and economical distribution of their wares.

The fact that so many railways converge at this point also is of great value. At present the Pennsylvania, the Philadelphia & Reading, the Northern Central, the Cumberland Valley, the Philadelphia, Harrisburg & Pittsburg, the Philadelphia & Erie, the Gettysburg & Harrisburg and the Schuylkill & Susquehanna Railroads, with their tributaries and connecting branches, converge at Harrisburg like the spokes of a huge wheel. The city is in reality one of the several commercial hubs of Pennsylvania. The railways mentioned run 223 passenger trains daily in and out of their respective stations at this place, and, in all, give employment to nearly 11,000 men, 7,000 of whom reside in Harrisburg.

"Cottage Ridge" (North Third Street)

Public Golf Course (Reservoir Park)





Connecting the City with the Cumberland Shore, Independence Island, and Other Points of Interest

In close connection with the railroads come the banks. There are now 15 banking institutions in the city with a combined capital and surplus approaching \$10,000,000.

All sorts of well-founded enterprises are growing up in the vicinity. Joining the city on the south, for example, is the giant plant of the Pennsylvania Steel Company, employing at its maximum 8,500 men. There are also tin plate mills, pipe mills, boiler plate plants, engine and boiler-making shops, and not the least, by far, the Pennsylvania system's great railroad shops. In addition to this list one finds large manufacturing of beds and bedding, typewriters, shoes, cigars, machinery of many sorts, stained glass and other specialties. These varied industries and the increased number of inhabitants have actually caused the area of the city to increase 57 per cent. in ten years.

Harrisburg's evolution from a comatose to a

wide-awake community has been healthful in every stage. It is not a boom city. Its growth has been consistent in every direction—in manufacturing and merchandising, as well as in population and conditions that make life pleasant. It is to-day a city of splendid and substantial realities; its foundation has been laid on broad, solid lines.

In support of these assertions probably nothing will be so impressive to the average telephone man as the following figures. They represent the number of Bell telephones in use in Harrisburg at the end of each year given:

1900.....1,037	1906.....3,786
1902.....1,603	1908.....4,275
1904.....2,258	1910.....6,034

These figures ably speak for themselves.

They show more plainly than many words what has been accomplished in Harrisburg.

Lastly, and better than all else, from a telephonic point of view conditions in Harrisburg are better than they ever were. All signs point to another decade of remarkable telephone development. The Bell Telephone Company of Pennsylvania believes this, and believes it so thoroughly that it is spending dollars by the tens of thousands in the improvement of its local plant. The buildings on Walnut Street are being reconstructed throughout. Entirely new toll and local switchboards of ample size are replacing the ones now in use without a moment's interruption of service. Aerial and underground cable work, already in a healthy stage, will be pushed far out into the suburbs. Every energy is being bent to the intelligent conception and anticipation of the requirements that are coming.

New 20-Mile Parkway Drive



View of North Front Street (Looking South)



Oval Views
Show
Sections of
the Plant of
the
Pennsylvania
Steel
Company
Harrisburg, Pa.



Center View
Illustrates
the Interior
of One of the
Central Iron
and Steel
Company's
Rolling Mills.
(An Extremely
Difficult
Photograph)

Washington on business, so he called him up on the telephone.

It happened that the Pittsburgh Chamber of Commerce had been trying for years to get Mr. Bede to speak before it. It also happened that Mr. Bede had canceled an engagement for the 18th. So he came to Pittsburgh and addressed one of the most successful dinners in the Chamber's history.

Greensburg District. A connection was established February 28 with the Valley Stock Telephone Company, of Cumberland Valley, Pa. This company has a trunk line from its switchboard to our Bedford, Pa., exchange, and another to the Cumberland exchange of the Chesapeake and Potomac Company. The organization of this company is especially strong and 50 subscribers are now being served.

A salesman in Johnstown, Pa., superseded a business house from party line to direct line service one day, and on the next induced the same firm to sign an application for a private branch exchange with 7 stations.

District Salesman Theurer has obtained from the J. W. Pollins Company, Greensburg, Pa., an application for private branch exchange service to consist of 3 trunk lines and 12 stations. The Pollins Company operates the largest department store in this vicinity.

New Castle District. New Castle Plant employees have formed a society for the study of different phases of the telephone business. Four very interesting meetings have been held, and a great many of the members took active parts in the discussions that formed a part of the programme at each gathering.

The Shippingport Telephone and Telegraph Company, of Shippingport, Pa., is now connected with the Rochester, Pa., exchange, and has added 15 stations to the Bell system.

Very complete reports of the recent Vogt trial in Erie, Pa., were printed in the Union City *Enterprise*. Mrs. Vogt was a native of Union City and interest in the murder trial ran high. All of this news as printed by the *Enterprise* was transmitted over Bell lines, and each

report was headed with the phrase, "By Bell Telephone."

"Drop and Aerial Wire Construction" and "Telephone Apparatus and Installation" were the subjects of recent meetings of the Western Reserve Telephone Club at Warren, Ohio. There was a large attendance at each of these meetings.

The New Castle Plant department has completed the installation of a private branch exchange for the American Sheet and Tin Plate Company, New Castle, Pa. It consists of 15 stations in the Shenango works and 9 additional stations at the Greer works, making a total of 35 stations. This firm has ordered the opposition company to remove its switchboard and 26 stations.

A No. 2 contract has been closed with the Amity Union & Waterford Telephone Company, and one has been signed by the Star Telephone Company. Both are in Erie County. The Amity Union & Waterford Company has 12 stations and the Star Telephone Company 6 stations. These companies are connected to our Union City, Pa., exchange.

Meyer

Uniontown District. A Morgantown, W. Va., salesman found a local barber shop proprietor to be an extremely difficult telephone prospect. The more calls the salesman made, the less chance there seemed to be of inducing the barber to take service. Finally the barber agreed to abide by his wife's decision. The barber remarked, as the salesman went out, that it was a good way to get rid of salesmen—believing that his wife would not listen to them. When the salesman returned with a signed application the barber was somewhat surprised, but added his signature to the contract.

Local Plant men are much interested in the Uniontown Plant Club, which former Plant Chief Duke started two months ago. Meetings are held every Thursday evening, and general topics on the workings and maintenance of the telephone are discussed.

The Hazel Atlas Glass Company, of Clarksburg, W. Va., has signed an application for a No. 2 private branch exchange, including 1 trunk and 10 stations.

The Commercial department at Connellsville, Pa., has moved into brighter and more suitable quarters in the Second National Bank building.

Cahoon

Stationery Notes

Carbon paper, size 5½ x 8½, is now carried in stock by the Western Electric Company.

The new 18-inch flexible hard rubber ruler now in stock is known as E. Faber No. 251. The 12-inch size of the same grade is known as E. Faber No. 252.

As an example of the many puzzling items found on requisitions, the Western Electric Company submits this excerpt from one recently received:

"½ doz. #110 Plug 3' cord night,
½ doz. #110 Plug 21" night cord."

In the accompanying note of explanation it is stated that although by long practice the "Western" representatives are fairly expert in solving such puzzles, their most plausible solution in this case is:

"6—3 ft. #225 white cord eq.
with #110 plugs, both ends 6—18 in.
ditto."

For filing printed instructions the Shipman binder No. 128½ has been placed in stock awaiting regular requisitions. It is hoped that these will be ordered wherever the general instructions are kept in order to provide a uniform method of keeping them throughout the territory.

Abstract of Oklahoma Decision

A recent decision by the Supreme Court of the State of Oklahoma in the case involving the reasonableness of rates charged by a telephone company apparently established the law governing regulation of rates by public service corporations in that State.

The case reached the Supreme Court from the Corporation Commission of that State on the appeal of the Pioneer Telephone and Telegraph Company in the matter of rates for the town of Enid. The opinion and decision of the Supreme Court involved a discussion of the question of the valuation of the property, the right and obligation to create a depreciation reserve fund and the rate of return, these three questions being the subject of contention between the company and the Commission.

The Supreme Court of Oklahoma followed closely the decisions of the Supreme Court of the United States in the recent Consolidated Gas Company case and the Knoxville Water Company case, and is along most conservative lines, which must give great comfort and encouragement to all investors interested in public service corporations operating within the State of Oklahoma.

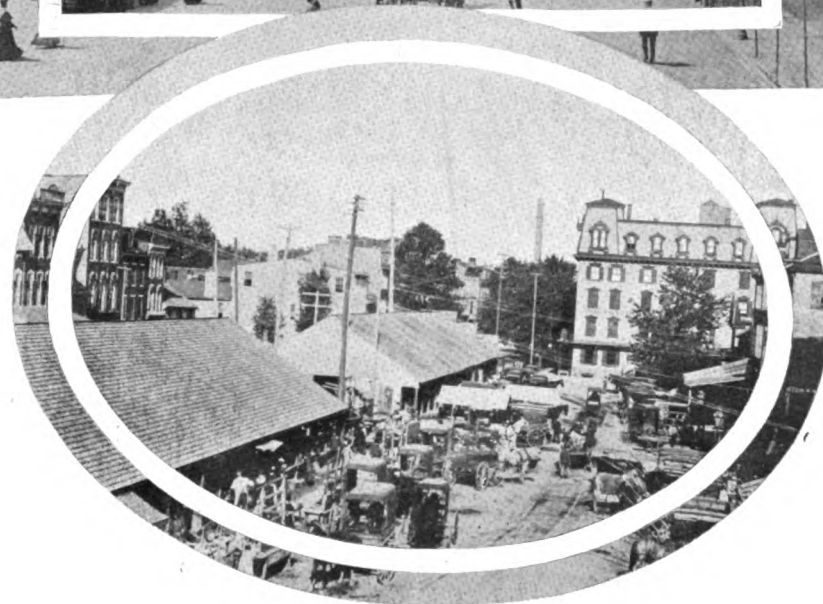
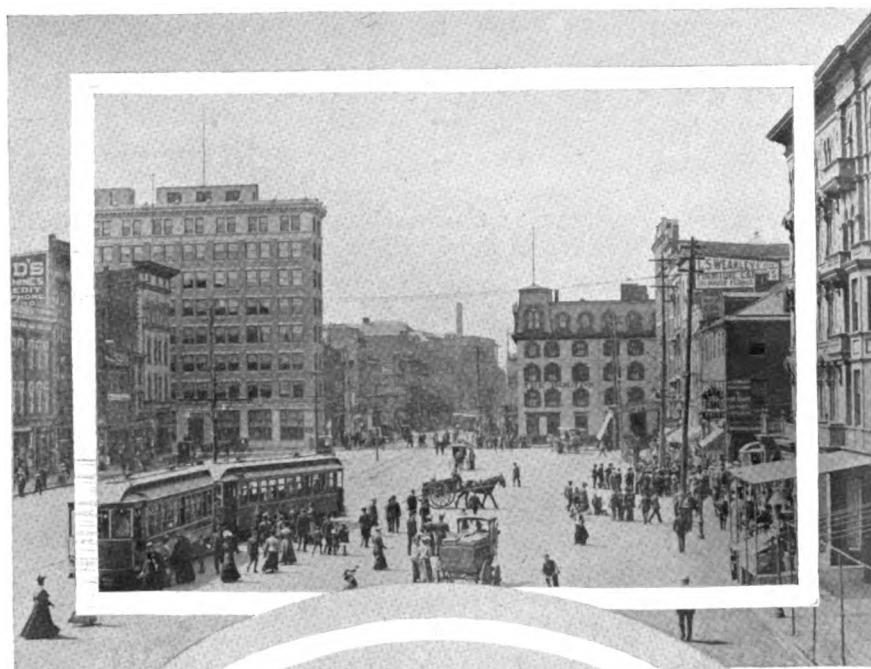
Adopting a ruling of the Supreme Court of the United States that the present value of the property used in furnishing the service is a basis upon which to measure the reasonableness of the rates in question, the Supreme Court held that in valuing the property of a public service corporation dedicated to the use of the public, such valuation should not be limited to the value of the physical tangible properties so used, but must include the value of the property as a "going concern." The Court said upon this point, among other things:

"There is no contention that any value on account of unexpired franchise or for good-will should be added to the reproductive value in order to ascertain the present value, but it is contended that by reason of the fact that appellant's plant has an established system of operation, has at present customers sufficient in number to pay the operating expenses and annual depreciation and some profit, it has a value beyond the mere cost of reproducing the plant. This element of value contended for has been generally referred to by the authorities as the 'going concern value' or 'going value.'

"It is apparent, however, that a complete telephone plant, without a single subscriber, or with but few subscribers, is less valuable to both the owner of the plant and to the members of the public it serves than the same plant with large patronage. The more people a subscriber can communicate with over a telephone exchange, the more service as a general rule, is such exchange to him; and it is only when such exchange has subscribers that the property of the owner invested therein has an earning power. But subscribers are not obtained without expenditure of money, labor and time, during which the capital invested in the plant earns nothing and often fails to pay operating expenses.

"During the term of development there is a loss of money actually expended and of dividends upon the property invested. How shall this be taken care of? Must it be borne by the owner of the plant? Or by the initial customers? Or shall it be treated as part of the investment or value of the plant constituting the basis upon which charges shall be made to all customers who receive the benefits from the increased service-rendering power of the plant by reason of these expenditures? It seems that the last solution is the original, just and correct one. If

Market
Square
Harrisburg
Pa.
1911
and
1885



rates were to be charged from the beginning so as to cover these expenditures and earn a dividend from the time a plant is first operated, the rate to the first customers would be in many instances, if not in all, so exorbitant as to be prohibitive, and would be so at the time when the plant could be of least service to them. On the other hand, the public cannot expect as a business proposition or demand as a legal right that this loss shall be borne by him who furnishes the service, for investors in public service property make such investments for the return they will yield, and if the law require that a portion of the investment shall never yield any return, but shall be a total loss to the investor, capital would unwillingly be placed into such classes of investments; but the law, in our opinion, does not so require. Private property can no more be taken in this method for public use without compensation than by any other method. When the use of the property and the expenditures made during the non-expense paying and non-dividend paying period of the plant are treated as an element of the value of the property upon which fair returns shall be allowed, then the burden is distributed among those who receive the benefits of the expenditures and the use of the property in its enhanced value."

Applying this ruling to the case before it, the Court added a sum equal to twenty per cent. of the value of the physical property of the company as a "going concern" value.

Upon the question of depreciation the Commission held that a sufficient allowance for current maintenance would be sufficient, while the

company contended that there must be created a depreciation reserve fund to take care of depreciation which could not be taken care of by current maintenance repair, and that this fund should be taken from the gross earnings of the company. The Supreme Court approved of the position of the company in this question, saying, among other things:

"All the evidence is to the effect that there is at all times going on in a plant of this character a depreciation that cannot be overcome by repair. It is rare that any physical property impaired by time and use can be so repaired as to be the equivalent of the same property now. There comes a time in the life of physical units when they cannot be made usable by repair, and they must be discarded and replaced by new properties, which requires the expenditure of capital."

The Court then quotes and adopts a decision of Mr. Justice Moody on this point in the Knoxville water case.

Upon the question of the rate of return, the Court follows the ruling of the United States Supreme Court in the Consolidated Gas Company case, and while it does not undertake to say what is a reasonable rate of return, it does say practically that the legal rate of interest allowed by the laws of the State would be the minimum rate of return, and that the maximum rate of return would depend upon the character and location of the enterprise, intimating that such a maximum would be higher in the cities and State of Oklahoma than it would be in the most settled part of the country.

Philadelphia Division

D. J. CLEARY, Division Correspondent

As a direct result of the Company's policy of establishing groups of booths in pharmacies it is interesting to know that one druggist, whose place of business is in the North Philadelphia district, has been averaging \$50 in monthly commissions from this feature of his store. Another in the same district has averaged \$36 for a number of months.

It is indicative of this idea's effect on business in general that the pharmacist first mentioned calculates that his sales attributable to accommodations, such as making change for telephone users, amount to \$250 a month.

One of Philadelphia's department stores with leased toll-circuits to adjoining towns recently advertised girls' middie blouses as a *telephone special*. Of a total sale of 326 resulting from this advertisement, over 200 were sold by telephone.

The Disbursement Division of the Accounting Department at Philadelphia tendered a farewell dinner to former Auditor of Disbursements F. L. Devereux, at Kugler's, February 27. Covers were laid for 35, and at the conclusion of the dinner toasts were responded to by Messrs. Buehler, Harrison, Hartz, Hons, Malatesta, Ross, Thompson, F. A. Vogel, Wiley, Brown and Devereux. J. R. Y. Savage acted as toastmaster.

In the third act of "The Fortune Hunter," in which John Barrymore has been appearing locally for several weeks, there is noticeable rather a unique advertisement for Bell Telephone service.

The curtain rises on the interior of a model pharmacy. Every feature is decidedly modern and in strong contrast to the appearance of the same store in a previous act. Conveniences and appliances of the most up-to-date pattern are everywhere displayed. Most prominent of all, perhaps, is a telephone stand in the very center of the stage. It bears a desk set (which is frequently used), and, suspended by its cord in full view of the audience, a standard Bell directory with the blue bell emblem strikingly distinct.

quently used), and, suspended by its cord in full view of the audience, a standard Bell directory with the blue bell emblem strikingly distinct.

Washington Division

R. G. HUNT, Division Correspondent

A contract has been closed for a switchboard and 60 stations in the New Winston Hotel. This large structure has recently been completed and is located just off the plaza of the new Union Station.

The newly organized Court of Commerce has arranged for a private branch exchange with 2 trunk lines and 14 stations. The Court at the present time is occupying temporary quarters in the Occidental Hotel building. During the summer it expects to move to permanent quarters in the new Southern building, where it is expected that more stations will be required.

Applications for private branch exchange service have been obtained from the following: C. E. Finch, 2 trunks and 6 stations; the Fidelity and Casualty Company, 2 trunks and 5 stations, and the Bluestein Company, 2 trunks and 4 stations.

The following letter, recently received by the Washington Contract Department, has certain merits which might recommend it as a model for many of our correspondents. It is headed with a clipping from one of our advertisements, which says: "Have You a Bell Telephone?" The writer has printed after this question, "No." The letter follows:

"Why not?" "No wires."
 "Where are you?" "On Benning Road, D. C."
 "Are wires near?" "Yes."
 "Where?" "At Central Avenue, at one side, and at Mr. Stutler's country home the other side."

"Would you like to put in a 'phone?" "Yes, possibly two."

"Why two?" "Because if no one was in the office building the house could get the message."

"Do you think other subscribers could be secured?" "Depends on the solicitor and the terms, perhaps."

"Are there any business places on this part of the road?" "Yes, two."

"What business?" "Two cemeteries."

"Can we see you?" "Yes, by appointment two days in advance at the office."

"Would it be a waste of time for our representative to call?" "No, not if terms and charges are reasonable in our judgment."

"Who are you?" "Write Box 28, R 3, Washington, D. C."

Supply Department

A new title has been created in that of Superintendent of Supplies. E. J. Speh has been appointed to this position and to him will report several Supervisors of Supplies. These are also newly created positions and the duties of the appointees include the supervision of storerooms, the establishment of maximum and minimum stocks, and similar duties as outlined in plant department general order No. 131. To date the following Supervisors of Supplies have been named:

R. J. Brent, Pittsburg; W. A. Kerschner, Harrisburg; J. A. Mann, Eastern Penna. and N. J.

H. N. Reeves will assume this work in Philadelphia, in conjunction with his present duties, and the storekeepers at Baltimore and Washington will act as Supervisors of Supplies in their respective divisions.

Harrisburg, Pa.

Interesting Data Indicating Harrisburg's Growth in the Last Ten Years.

	1900	1910	Per Cent Gain
Bell telephones	1,037	6,034	482
Population	50,167	64,186	28
Park acreage	30	995	3,217
Park and playgrounds	1	11	1,000
Miles of paved streets	4.6	44	856
Miles of sewers	36.3	65	79
P. R. R. employees	4,623	7,550	63
Street railways, miles single track	56.24	71.29	27
Street railway passengers carried	8,303,512	19,334,074	133

Baltimore Division

The following letter was lately received from a Baltimore subscriber, a coal dealer, who is a great user of toll service:

Permit me to express to you my appreciation of the very efficient service rendered us by the C. & P. Telephone Company. My chief reason in writing this letter is to, through you, thank the local, toll, and long distance operators for being especially quick and intelligent in handling our calls. We are great believers in the efficiency of telephone sales, and through this medium I have just had the pleasure of taking an order for our Girard Mammoth F. B. W. A. anthracite coal, which amounted to \$11,000. This sale is only one among others that we make daily over the telephone to toll and long distance points. We do not wish to give the impression, however, that we make an eleven thousand dollar sale every minute.

In conclusion, beg to state that I have been so successful in taking orders over the telephone that even were I not inclined to be courteous I could not help being so to the young women operators that I come in contact with a great many times a day.

My object in writing this letter is simply to give credit where credit is due—to the operators.

The writer of this letter is now preparing a series of letters to his customers to stimulate their ordering by telephone. His firm is to pay the telephone charges.

There is a blind telephone operator in charge of the private branch exchange at the Sheppard & Enoch Pratt Hospital, in Baltimore. It is said that despite her affliction she surpasses in efficiency all of her predecessors. A blind operator was employed at the instance of the Maryland Association of Workers for the Blind, whose object is "to help the blind to help themselves."

High-salaried Male Switchboard Operators

Several large firms down town in New York have dispensed with women operators at their telephone switchboards and are employing high-salaried men to do the work, says *Telegraph and Telephone Age* of February 1. Among such houses it has come to be recognized that the task of dealing discreetly with the calls that come in so promiscuously over the wire is not a mere switchboard operator's duty. Rather, it demands a confidential person with such experience, such clear judgment and so much ready diplomacy as is rarely possessed by young women.

It is stated that there are firms in the financial district who pay their operators \$2,000 and \$3,000 a year, and find that it pays the firms handsomely. Some particularly eminent concerns whose operations are of peculiar significance and delicacy pay even more. Such operators are virtually confidential private secretaries.



Executive Mansion, Harrisburg, with Two of the Twenty-one Special No. 2 P.B.X. Bell Telephones in Service.



Telephone Societies

The Spare Pair Society

Fraternity Building,
1414 Arch St., Philadelphia.
March 15.

Speaker: C. A. Frost, Chief Clerk, Plant Department.

Subject: "Motorcycles."

Northern Pennsylvania Telephone Society

Leonard Hall, Scranton, Pa.
March 17.

Subject: "The Telephone and the Telegraph."
No speaker; general discussion.

West Philadelphia Telephone Society

Lancaster Ave. below Fifty-second St.
March 21.

Speaker: W. G. Lewis, District Manager West Philadelphia District.

Subject: "Prospects: A Few Details."

Employees of the Company are invited to be present.

Altoona Plant Class

1110 Thirteenth St.
March 21.

Speaker: E. B. Arlton.

Subject: "Specifications for Installing a P. B. X."

Reading Plant Class

31-33 North Fifth St.
March 28.

Subject: "Machine Rectifier and Interrupter."

Reader: T. S. G. Hasskarl.

Comments: Nagle, Hartman, Fegley and Lewis.

The Telephone Society of Baltimore

5 Light St.
April 5.

Speaker: J. H. Crosman, Jr., Harrisburg Division Manager.

Subject: "The Employee as an Important Factor in Our Relation With the Public."

The Bell Club of Germantown

26 W. Cheltenham Ave.
March 28.
Announcement later.

Western Pennsylvania Telephone Society

Board of Trade Auditorium,
Harrisburg.
March 20.

Speaker: L. H. Kinnard, Commercial Manager.

Subject: "The Development of the Telephone Habit; Our Opportunity."

Business meeting at 7.45 P. M.; address at 8.15.

Western Maryland Telephone Society

Hagerstown, Md.

The regular monthly meeting of the Western Maryland Telephone Society was held in the

Interior of the
Private Office
of the

Secretary of the
Commonwealth
in the State

Capitol Building,
Harrisburg.

The illustration shows

a Bell Telephone

and a

Philadelphia Telephone

Directory on the

Desk of

Secretary McAfee



Bell Telephone Booths
located in the
Rear of the
Senate Chamber,
Capitol Building

Plant office February 14, at eight o'clock. The members were well entertained with an address delivered by C. Gerard Dodge, District Manager, Cumberland, Md.; subject, "Tact and Tenacity." A. C. Allgire, District Manager at Westminster, Md., and R. B. Smith, Agent at Martinsburg, W. Va., also said a few words regarding commercial work.

The P. C. T. Club

The P. C. T. Club at Trenton held its monthly meeting on February 22, 1911. The speaker of the evening was T. H. Smith, Plant Wire Chief of Princeton. His paper covered the present plant conditions in Princeton. After the general round of questions from the various members, E. B. Zerman closed the meeting with a brief talk on the Company's growth in Princeton since the time of the first installation.

The Telephone Society of Washington

The twenty-fifth regular meeting of The Telephone Society of Washington was held on Thursday evening, March 2. Major George Owen Squier, Signal Corps, U. S. A., talked to the Society on the very interesting subject of "Multiplex Telephony and Telegraphy."

Following Major Squier, several officials of the Company and guests made short comments upon the paper. These were Messrs. Kinnard, Burton, Berry, Mouradian of our Company, F. B. Jewett of the American Telephone and Telegraph Company, and George C. Maynard, a pioneer in the telephone business in Washington.

Bell Educational Society of Erie

At a meeting held in the Erie, Pa., central office on Friday evening, February 10, a telephone society, called the Bell Educational Society of Erie, was organized. A majority of the male employees of the company in Erie were present at the meeting and officers were elected as follows: E. J. Cleary, president; J. F. Mulheirn, vice-president; H. F. Neumer, secretary. After the election a committee was chosen to select the speakers for each meeting. Meeting nights are Wednesday evening of each week.

A Unique Letter

The following letter was received by our manager at New Orleans, La., says *The Cumberland Telephone Journal*. It is written in what is commonly termed in Louisiana "Gumbo French," or "Kajan." It refers to a recent advertisement appearing in one of the papers concerning the proper manner of calling for telephone numbers, and the insertion of this class of advertising is securing the attention and interest and coöperation of the public.

NEW ORLEANS, LA.

MONSIEUR WHO KEEP DE TELEPHONE COMPAGNIE:

I was read in de pape dis mawning to-day one great big h'artique you was write h'axing de peope to make moch mo' attention, particulièrement wen you play wid de OS espesialement wid de Maine Nombree 600 you say he make much confusion, mistake, erreur, trouble, wan you don speak de double O'S two times rite on de phone, sometime you h'axe fore one ting & and de man on de oder h'end ov de fil'defer doan keep him & dere was some cuss wurd speak wen he get mad wid rage, yas! Me I speak dis wid experience an I say dat you waz rite first & h'all de time, and I was goan show you dat wat I say waz true, yas! & you kin save me moch trouble by fix de speak machine, me I h'am Main 600 & for dat I feel some time I waz goan git gray hair on de top of my bald head & craizie onder neat de hair all on h'account ov de O's an how you say im on de speak machine.

Now I com down to de brass taxe: I waz a moch bizzzy man, and doan got moch time for to play wid de mistake de peope waz made wid de h'os on de speak machine, de bell he ring ting a ling, I grab de trompet, I say in one big voice Hallo, he say dat you, I say dat me, yas; he say sand me right way one douzaine bouteille Carter liver pill, 5 pound something he say to make a h'old lady look young, 2 gallon tonique to make young hairs grow on h'old bald head. I say stop, doan talk so moch ting at one time, me I doan keep a Wholsale Pharmacie Drog Store, he say I wan l case bebe nurse bottle, me I say, you most speaksom whar else, I was Generale Insurance, may be you doan no'im he was moch mo great before de wah dan General Beauregard an if you doan stop h'axe for dem ting, I will show you right away how a General kin fight even wen he was dead.

He say, in a voice dat waz moch tremble I h'axe pardon like Gentile L'home I thought you waz a drog store, I say next time you want me I h'am six double o. De bell he ring dis tim e planty times, I say hallo, dis time der was a lady im speak, I say for not to make a mistake, you wan buy som Real Estate, she get mad dis time she say, No, send me 2 gallon Ice Cream de vanille & some Cake assortis mo of cream poff, h'all not to soft and not too hawd, but quick, in time for, for de Soiree he was goan to take place in my house, I say pardon madam, you mos have make one mistake wid de number, I doan keep a Confiserie, she say I want nombree Six two o I say please ring h'off she give one mad ring, Eh been not my fault, no If I was got all de ting that was call for in de speak machine in a day, I would soon I would be a rich Marchand, Departement Stoh, and den de mistake wid the h'o's, would be a good ting for me yas, but now h'as it is noting but la missaire So I wan tell you I was glad you make to-day some speech & show de peope how to make talk on youh speak machine, and if dey listan to you I will dormier wall for some time to come in peice,

Respectuesement, YAI YAI.

Nombree Maine 600. Generale Insurance & some Real Estate.
P. S. Dat was true, yas.

Basic Principles of Telephony

In the *Scientific American Supplement* for February 4, 1911, there is an article bearing the caption, "Some Notes on Telephony," which is noteworthy in at least two respects. The author describes technically the basic principles of the modern telephone's mechanism, for one thing, and at the same time presents the subject in a way that should appeal to every lay reader. The drawings illustrating the story, furthermore, are simple in the extreme.

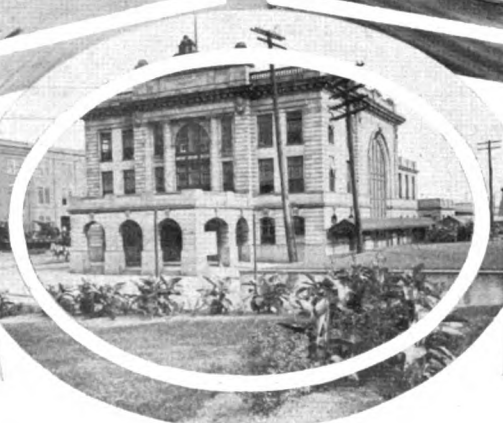
Board of Trade
Building,
Harrisburg, Pa.
Headquarters of
"Greater Harrisburg"
Campaign



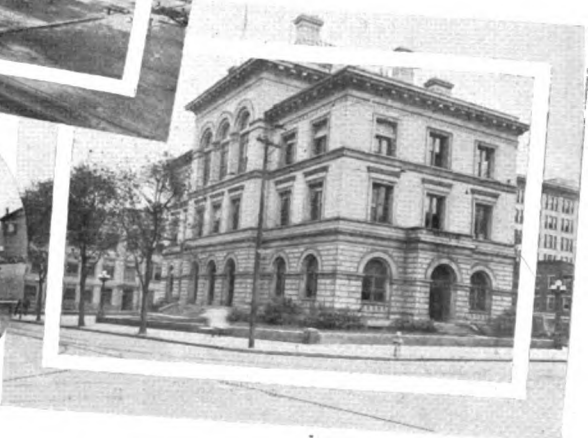
New Masonic
Temple,
Facing Capitol
Park



Harrisburg Club, Overlooking
Susquehanna River



Philadelphia and Reading
Railway Terminal at Harrisburg



Federal Building, Showing Part of the
Company's Walnut Street Building (left)

Organization and Territorial Changes

The following changes became effective March 1:

Ford Huntington has been elected Treasurer; W. S. Peirsol has been elected Secretary and appointed Assistant Treasurer; Walter Brown has been appointed General Auditor; M. H. Buchler has been appointed Auditor; W. J. McLaughlin has been appointed Assistant Auditor; P. O. Coffin has been appointed Auditor of Receipts; E. C. Wiley has been appointed Auditor of Disbursements.

The above changes apply in all of our Companies.

W. C. Fink has been appointed Assistant Treasurer of the B. T. of Pa., D. & A., Diamond State, Diamond State of Va. and the C. D. & P. T. Companies.

A. P. Crenshaw has been appointed Assistant Treasurer and Assistant Secretary of the C. & P. and the C. & P. Telephone Company of Baltimore City.

J. H. Boeggeman has been appointed Division Auditor of Receipts of the C. D. & P. Tel. Co.

J. H. Hons has been appointed Division Auditor of Receipts of the B. T. of Pa., D. & A., Diamond State, Diamond State of Va., C. & P. and C. & P. of Baltimore City.

R. J. Roszel, Equipment Engineer, has been transferred from Philadelphia to Washington, Engineering Department.

A. B. Marston, Equipment Engineer, has been transferred from the C. & P. to the D. & A. Company, with offices at 406 Market Street, Philadelphia.

A. G. Schanze, Rights of Way Assistant, has been transferred from 406 Market Street, Philadelphia, to Camden, N. J.

W. C. Baird, Assistant on Plans, has been transferred from 406 Market Street, Philadelphia, to Wilmington, Del.

W. P. Wattles, Traffic Supervisor, has been transferred from Philadelphia to Trenton, N. J.

C. C. Clegg and F. P. Meigs, Toll Rate Clerks, and G. C. Hoffbauer, Clerk, have been transferred from the Accounting to the Traffic Department.

A. G. Everett has been advanced from climber to Foreman at Pittsburg.

Western Union Telegraph Company

W. A. Sawyer, formerly District Commercial Superintendent of the Western Union Telegraph Company at Philadelphia, has been transferred to a similar position at New York.

J. W. Reed, formerly District Commercial Superintendent at New Haven, succeeds Mr. Sawyer at Philadelphia.

Organization of Commercial Department, Philadelphia and Atlantic Coast Divisions

Effective March 1.

The following rearrangement of divisions and changes in the organization of the Commercial Department have been authorized:

Bucks County, Montgomery and Chester Counties, excepting the area served by the Ambler, White Marsh, Willow Grove, Abington, Bethayres, Ogontz, Cheltenham, Melrose, Berwyn, Devon, Ardmore, Bryn Mawr, Narberth, Cynwyd, Merion, Paoli, Sugartown and Malvern central offices, formerly a part of the

Philadelphia Division, have been transferred to and made a part of the Atlantic Coast Division.

The area served by the Ambler, White Marsh, Willow Grove, Abington, Bethayres, Ogontz, Cheltenham and Melrose central offices is embraced in the Germantown District of the Philadelphia Division in charge of J. M. Brown, Jr., District Manager—headquarters, 26 West Cheltenham Avenue, Philadelphia, Pa.

The area served by the Berwyn, Devon, Ardmore, Bryn Mawr, Narberth, Cynwyd, Merion, Union Station, Wayne, Newtown Square, Paoli, Sugartown, Malvern, Lansdowne, Sharon Hill and Llanerch central offices, the majority of which were formerly in the Main Line District, are embraced in the new Main Line District of the Philadelphia Division, in charge of K. M. Whitcomb, District Manager—headquarters, 52d St. and Lancaster Ave., Philadelphia, Pa.

Delaware County, including the exchanges at Concordville, Chester Heights and Glen Mills, excepting the area served by the Llanerch, Newtown Square, Union Station, Wayne, Lansdowne, Sharon Hill and Bryn Mawr central offices, comprises the Chester District of the Philadelphia Division, in charge of W. P. Hull, District Manager—headquarters, Chester, Pa.

Bucks County, and the portion of Montgomery and Chester Counties embraced in the Atlantic Coast Division as defined above, constitutes the Norristown District, in charge of W. C. Hartranft, District Manager—headquarters, Norristown, Pa., reporting to the Atlantic Coast Division Manager.

The Local Manager at West Chester and the Agent at Doylestown report to the Norristown District Manager.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

APRIL 1, 1911

NO. 7

**Second Vice-President and General Manager
of
The Bell Telephone Company
of Pennsylvania
and Associated Companies**

PHILIP L. SPALDING

**Publicity Work
A Paper Read Before
The Philadelphia Telephone Society
by
P. C. Staples - - - Publicity Manager**

OUR Second Vice-President and General Manager was born June 27, 1871. For several generations both branches of his family had lived in the towns of Enfield and Windsor, Connecticut.

When Mr. Spalding was about eight years of age his parents, James Field and Mary Harper Spalding, moved to Cambridge, Massachusetts, where they continue to reside.

Mr. Spalding was prepared for college at the Cambridge High School and at Noble's, a private school in Boston. In 1892 Mr. Spalding was graduated from Harvard University with the degree of A.B., and two years of post-graduate work gave him the degrees of M.A. and B.S.

He entered the employ of the American Telephone & Telegraph Company in Boston in July, 1894, in the Mechanical Department under H. V. Hayes.

In February, 1895, Mr. Spalding came to Philadelphia to assist Theodore Spencer, who, four months prior to that time, had begun the work of replacing the "Law" system with that of common battery. His first position with The Bell Telephone Company of Philadelphia was that of General Inspector in charge of men clearing substation trouble. In 1897 he was made Assistant Engineer,

and three years later Engineer of that Company.

In 1905 Mr. Spalding became General Superintendent, and in 1906 was elected General Manager of The Bell Telephone Company of Philadelphia, The Delaware and Atlantic Telegraph and Telephone Company, and The Diamond State Telephone Company.

In 1907 he was chosen General Manager of The Chesapeake and Potomac Telephone Co., and in 1908, when The Bell Telephone Co. of Philadelphia purchased The Pennsylvania

Telephone Co., he continued in the position of General Manager. In April, 1910, he was made General Manager of The Central District and Printing Telegraph Company.

In January, 1911, he was elected Second Vice-President of the Bell Telephone Company of Pennsylvania and Associated Companies, and was subsequently elected a director of The Bell Telephone Company of Pennsylvania, Delaware and Atlantic and Chesapeake and Potomac Companies.



PRELIMINARY to a consideration of what the department with which I am associated is endeavoring to accomplish along publicity lines, I presume that a few moments may be advantageously spent in résumé of the several factors that are to-day making towards advertising and publicity of the Bell System.

Doubtless you are all familiar with the association of companies comprised by this Bell System, as well as with the mental and mechanical agents that have made possible its creation and its continuance. That there is an American Telephone & Telegraph Company, which mothers some twenty-odd operating companies, is in detail all ancient history to you. It may be profitable, however, to dwell briefly on the general plan of Bell Telephone advertising and publicity that has been realized by this association of business units.

The American Telephone & Telegraph Company has for some time conducted a general publicity campaign, national in scope, employing a hundred or more broadly circulating magazines as media for the kind of advertising copy that will portray to the American public the efficiency and universality of the Bell System, or in other words, what we have come to recognize intimately as the one system, one policy, and universal

service of this business that so vitally concerns us.

Those of you who have read these American Telephone & Telegraph Company's magazine advertisements can not have failed to be impressed with their mission. I believe that I might safely characterize this effort of the mother company as an endeavor to familiarize the American people with what we have conceived to be the essential functions and logical business

(Continued on Page 3)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

U. N. BETHELL, President

F. H. BETHELL, Vice-President

F. L. SPALDING, Second Vice-President and General Manager

FORD HUNTINGTON, Treasurer

W. S. PRIBB, Secretary

M. H. BURKH, Auditor

WALTER BROWN, General Auditor

W. R. DRIVER, Jr., Traffic Manager

L. H. KINNARD, Commercial Manager

N. HAYWARD, Chief Engineer

J. C. NOWELL, Plant Manager

Managing Editor, E. H. HAVENS, 1230 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - - - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII APRIL 1, 1911 No. 7

The Telephone's Birthday

In this commercial age, marked, among other things, by a widespread desire for publicity, industries and utilities are inclined to "celebrate" on the slightest excuse. Sometimes the spectacle is creditable, again scarcely worth while, and occasionally very tiresome. Business birthdays, in particular, are favored reasons for demonstrations of this kind.



On the surface, then, it seems odd that the coming and going of Tuesday, March 7, caused no excitement whatever in the telephone world. It is reasonably safe to say there are really capable employees in our Companies who did not know the significance of the day—that just thirty-five years ago on that date the United States issued a certain patent to Alexander Graham Bell, then a struggling teacher of the deaf and dumb in Boston. Except for scattered editorial items the recurrence of the date attracted little attention even among news gatherers and commenters. As for the various Companies in the Bell system—they simply kept on working.



In casting about for a plausible reason for this apparent disregard of publicity opportunity, one notes a number of things that might have been celebrated, this thirty-fifth anniversary. Problems have been solved, progress has been made, profits have accrued, Doctor Bell has lived to see his dreams realized—all or each of these features of telephone life would appear ample cause for calling attention to ourselves.



But the telephone man of now—for a reason—is not doing much celebrating.



Briefly, the answer is that he is too busy. Past achievements are past, and are considered of value only as helps in

solving the future. "The telephone man of to-day is too busy even to talk," said Herbert N. Casson, in a recent address, "He gets others to do it for him."



It is splendidly true that a great work has been done, but consider what remains. Solutions are needed at once for questions like these:

The perfection of a telephone repeater for long-distance conversations.

A method by which duplex cables can be adapted to present operating principles. Loading No. 8 circuits and phantoming loaded circuits.

An adequate plan to determine upon a universal code embracing every telephone subscriber in the country.

A new grounded wire system by which copper costs may be halved.

Extension of the present long-distance talking radius.

Simplification of the present switch-board.

Universal acceptance not only of the telephone's efficiency, but of its indispensability.



There are other problems—dozens of them—but these show their calibre.



To-day the industry is about thirty-five years old. Each man in the work knows what has happened in that time, and is properly proud in the knowledge. But he cannot afford to drop his tasks and fondly contemplate the road to yesterday. This business of ours is peculiarly of the immediate future. We must keep right on anticipating and providing. The road to to-morrow is the one with which we are vitally concerned.



Altogether, it looks as though we did the one right thing in forgetting to celebrate our birthday.

Earned Congratulations

JUST a few days ago a representative of a corporation doing a national business called at our 1230 Arch Street offices, Philadelphia, and inquired for a Plant representative.

The usher in the business offices directed the man to the elevator and even opened the door leading through the hallway to it. Two employees, who stood waiting to enter, stepped aside and permitted this "outsider" to precede them and, as all happened to be bound for the fourth floor, repeated the courtesy and he entered the offices there ahead of them.

An attendant, upon learning whom he wished to see, immediately ushered him to

a clerk's desk just outside of the private office of the man whom he came to interview.

There a clerk who happened to be waiting for the same officer to become disengaged arose without a moment's hesitation and offered this man his chair. When the time arrived the business caller was shown in and the clerk continued to wait for his own interview.

"It seemed," said the man, "as if I had been expected and everyone had been posted to treat me courteously, but I knew that such was not the case for I had decided to make this business interview only that morning about a half hour before I actually arrived. I hadn't telephoned in advance; I was, therefore, forced to acknowledge that such courtesy is a common practice in regard to all visitors at the general offices of your Company."

Another instance similar to the foregoing happened several days ago.

A subscriber who disregarded the "Employees' Entrance" sign at the Thirteenth Street entrance of our Down Town offices (1230 Arch Street, Philadelphia), found himself among the desks of the office force instead of at the Cashier's window.

"A clerk courteously showed me the way to the Cashier's window and did it in a perfectly natural way so that I was not even embarrassed," said the man. "The treatment was very different from that received at another public office not that of the Telephone Company a few days before. I entered at a side door and stated my business."

"'You'll have to go around to the other entrance,' said a clerk gruffly. 'We don't attend to those things here!'"

"Although it was raining I was compelled to go around to the other entrance. There was an inside passage way, not public, to be sure, but one that might have been offered to me. When I did go around to that door I decided that I could get along without the extra goods and I left without making the purchase. That's why I think the Telephone Company is to be congratulated on the personnel of its office force."

Ambition to be First

If I were a cobbler, I'd make it my pride
The best of all cobblers to be;
If I were a tinker, no tinker beside
Should mend an old kettle like me.
But whether a tinker, or whether a lord,
Whatever my station may be,
Determined to play second fiddle to none,
I'll climb to the top of the tree;
Let who will be second, the first I'm determined to be.
Thayer's "The Way to Succeed," in March
Graphic Arts.

Publicity Work

(Continued from Page 1)

basis of a quasi-public service enterprise like our own. This national advertising, or perhaps we had best here term it publicity—in that it is not directly demand-producing—is calculated to serve as a foundation for the specific effort of the associated companies—a foundation on which they may raise their individual appeal to the sectional public that is interested primarily in the local service features of this great Bell System.

If your business or social activities have carried you beyond our own territorial limits, you have observed that the associated companies everywhere are striving, in advertising their "wares," to punctuate this national magazine publicity of the mother company with direct selling appeal to the communities or territories which they serve—capitalizing and turning to their own advantage all that the national campaign has realized. And you cannot fail to observe how the local company's advertising burden is lessened when the public it serves has been treated with this national campaign medicine—when this universality idea, this standardization of policy and practice doctrine, has been preached to the multitude.

I have just used the word "advertising" as applicable to the local company's newspaper display, and for the reason that under normal conditions it is but black and white selling talk. When you grasp a fellow by the coat sleeve, command his eye and his mental attention, tell him you have something he should have, and ask him to buy it—that is salesmanship. When, under otherwise identical conditions, the arm that grasps the coat sleeve is composed of two cents' worth of printer's ink impressed upon a penny's worth of rag or wood-pulp paper stock—that is advertising. Call them both salesmanship if you will—or both advertising. No great argument will be precipitated, unless perhaps between the Division Manager and the Publicity Manager; for both tend to create demand, both sell goods—and, ignoring their by-products, we may regard them as analogous.

So, therefore, do the associated companies build their local advertising campaigns on the foundation of national publicity laid by the mother company. With your permission I should like to dismiss at this point the consideration of local company advertising, passing to the subject I have chosen for this talk, Publicity Work, as our Pennsylvania group of companies conducts it.

Perhaps I have made clear the interdependence of local company advertising and the national Bell System campaign. Moreover, I trust that the logic of such an arrangement is obvious. Were this exclusively a gathering of commercial men we might excite no small measure of discussion by elaborating to some extent on the why and wherefore of this Company's advertising. But in that our methods of preparing and distributing newspaper or circular advertising copy involve so many of what may be called commercially technical considerations, I presume that a great majority of you would be but little interested therein. The finished product is familiar to every one who reads his newspaper and his mail. Frankly, it must be realized that there is a profusion of thoughts and ideas as to the use of telephone service which may be capitalized as effective advertisements of our commodity. Given a definite and adaptable use of the Bell telephone, add to it an ounce of common sense handling and a pinch of art work, and it would

seem that we have an effective advertisement, dependent for its value only on the so-called handling of the subject matter. Perhaps this is the case; at least I do not desire to dilate on the considerations of this Company's newspaper, folder, or circular letter advertising. What would appeal to me as a subject of greater interest to you is the factor of publicity that is to-day playing such a significant part in our gratifyingly satisfactory public relations.

Publicity, as I interpret it, is the promotion of public knowledge or understanding of a fact or conditions. It would seem then that publicity is educational in its adaption and method. We set up as our goal an ideal viewpoint on the part of the public toward our business enterprise—a viewpoint that shall embrace complete understanding and its consequent appreciation and applause. And in that the public does not always applaud, our task is to mould, to transform—or whatever the process may be—that much discussed public opinion or understanding. We have no scarcity of tools; they lie at every hand. It appears to be our problem to select those which may accomplish most at a minimum expense of time and resource.

After reviewing our publicity work for the past year or more with a view to discussing concretely what may seem to be good publicity, may I presume to say that so much has been attempted, our endeavor so diversified, that a broader understanding of this subject can be best encouraged by a few abstract observations that will serve to illustrate the need for publicity as we see it, and our course of operation in some particular instances.

If the late Mr. George G. Steel were still with us he might detail the circumstances incident to the first move of a distinct publicity nature made by this Company. I believe it was in 1909—at any rate, I recollect that up to that time ours had been an advertising department, pure and simple. We had just passed through what might have been termed one of the real creative periods in our commercial activity. Surely it was creative of much, for in those days there was the wildest sort of a scramble for stations and revenue and glory—and, to use the vernacular, we "got all that was coming to us" in each particular. But publicity, and the conditions that called for it, were first evidenced in this year of 1909, when the dying gasps of an independent company in Baltimore gave birth to a feeling in the minds of the business gentlemen of that excellent city that something direful might happen if the Bell should control the local telephone field.

So a publicity campaign was inaugurated. It took the form of newspaper copy in this case, copy that brought us into the limelight of public scrutiny in an exposition of just what this Bell system was, what it meant to Baltimore, and what it promised for the future; withal what a safe and sound investment it was for the confidence of any community. To the people of Baltimore this series of educational newspaper copy came as a prophet of good—and for two reasons. First, because what had previously appealed to many of them as a huge, silent, secretive corporation was voluntarily opening for their inspection its book of policies, practices and purposes; and second, because this voluntary exposé was of such a character as to clear the skies of public doubt or want of knowledge. And in that this campaign was in the first instance successful, it has since served as a basis for newspaper publicity in many a city and town where medicine of that particular sort has been needed. To-day we have just completed a similar campaign in Pittsburgh, where new rates have been introduced.

Big smashing educational displays were placed in the newspapers, while reductions in pamphlet form were distributed among our patrons; and as a dissipater of unrest, or the uncertainty of public feeling that culminates therein, I am sure we have no more effective tool.

With this as a beginning, as an initiation, so to speak, we have built up a plan of general Bell publicity; and as the newspapers served in the first instance as a means of reaching the public, let me tell you briefly what the newspapers have since and are to-day effecting for us along this line.

There was a time when telephone activity in a community meant no more to the local press than the coming of the morning sun. As Mr. Herbert Casson has pointed out, the telephone has always been such a silent, unpresuming little something, so devoid of smoke, noise, or the spectacular, that the public has looked upon it as a very ordinary and only-to-be-expected affair. For this reason more than any other it has suffered much from the standpoint of publicity, when compared with other great commercial factors of the age.

By way of comparison—a railroad lays a spur track to some little two by four town, and the noisy and smoke-emitting construction train, with its horde of shovel and pick wielders, keeps half the village awake at nights for weeks at a stretch; and forthwith the new line is opened amid much hurrahing and oratory. But with the telephone—how different are conditions! Every day, almost, we are laying a reel of cable, or erecting a stretch of aerial that could—each minute—furnish service to as many people as the railroad spur would accommodate in a week. But there is no noise, no bustle, no oratory. The work is undertaken and completed with a calm and almost noiseless severity that it quite uncanny. Unlike the railroad construction, it does not in itself beget that general attention which stands for publicity. And so, too, with our plant in operation. Removed so largely from sight, from hearing and from touch, it has increased and spread with comparatively no public notice or mention.

But to-day we find that the American people, stimulated by the writings of gentlemen—and I might almost call them outsiders—like Mr. Casson, Mr. Collins and others, have come to realize how much all this telephone activity means. And there has arisen the desire for news—news of this exploitation, of this great telephone progression. I believe that the newspapers recognized it even before we did, but at any event this demand for news is now of no small consideration to the Bell companies. Look over your daily newspapers, and it is difficult to find one that does not record a telephone happening—one, perhaps, where a four and a half pound combination of metal and hard rubber has saved a life or a fortune, or where the company itself has instituted some further improvement of service, some enlargement of plant, some epoch-making innovation in business or society.

All this is telephone publicity, and we are capitalizing it as we should, by meeting every demand for news, every appeal for articles that are legitimately of public interest. While I believe that we have placed a very proper value on what the other departments are furnishing us in the way of information for the preparation of these newspaper articles, yet I am tempted to believe that to-day we would not go so far wrong if we should run riot and essay the job alone, as we are often tempted to do, when Scranton requests a plant construction article, Philadelphia an operator story, Washington a dual service symposium, and two other cities a

Publicity Work

(Continued)

call-by-number appeal, all in the same mail. Such articles are being prepared daily, and the men of other departments are frequently whipping into shape excellent stories on this, that and the other subject, which are standing the acid test of Class "A" publicity.

Particularly in the rural districts, where telephone progress has heretofore gone unheralded and its significance unsung, are we securing excellent results. Our eastern farmers and country people have come to realize that the building of a rural line, the placing of a toll station, or the establishment of a central office means more to them and to their community than the city styles and Wall Street happenings that so long served as newspaper "fillers" when local-interest items were scarce. And to-day, with the excellent assistance of our commercial field force, we are supplying the country papers with news of rural telephone activity which is welcomed and treated as matter of genuine interest to the community.

Besides the stories and readers, the press is desirous of official and financial news—eleventh hour and fifty-ninth minute information on what has happened higher up, what reorganizations have been effected, what officers elected, what dividends declared, what attitude or opinion the company holds toward this law or that bill—and each occasion means interviewing an officer or delving into the records of the company, then talking straight and to the point.

So with the magazines. One will want a five-thousand word dissertation on the company's attitude toward antiseptic mouthpieces, another our engineers' expression on multiplex telephony, and a third the whole story on dual telephone service. Again it is a case of consult and act—a delay is interpreted as significant of an unwillingness to talk, or a fear of committing—and all this means action that would delight the most ardent exponent of strenuousness.

A wave of municipal uplift, or the souvenir program of some small city's centennial, will prompt the committee in charge to wait on us or the local commercial man with a request for the history of the telephone in their metropolis—a history which must be written over night, and which must be handled in such a way as not to bring home too strongly to the local enthusiasts the fact that the Bell telephone has probably been more instrumental than any other factor in putting their city on the map.

Almost too frequently, so it sometimes seems, there is a call for first aid to our subscribers, when bogus equipment is being palmed off on the unsuspecting Pittsburghers, or Atlantic City folks have decided to call "Coast" subscribers from Bell stations, or the Philadelphians have forgotten the logic of replacing the telephone receiver on the hook; and down we dig into the publicity appropriation for the cost of newspaper advertising, or special letters, or enclosure slips to put our patrons straight. Phonetics, or some such ultra-technical study, may prompt our traffic experts to change the party line designation letter "R" to "W," and Scranton, Wilkes-Barre and the rest must be informed. A new local-service zone for "Jersey" means more or less elaborate literature. The recently announced Bell-Western Union joint service arrangement called for close to a million subscriber notices—notice to regular subscribers, notices to irregular subscribers, to public telephone agents of several and sundry classes—and meanwhile the representative newspapers were coming in for their quota of news and

advertising. To me this Western Union effort was a particularly enjoyable ripple on the publicity mill-pond, in that it seemed to comprehend every sensation from business ethics to strong arm work in confining what was theoretically a forty-eight hour printing job to twenty-four. I am sure our printers will testify as to the strong arm feature.

But this sounds as though our publicity methods were haphazard, without system, with no fundamental plan—as our engineers say. Perhaps I have unwittingly made it appear as a very unstudied effort, which decidedly it is *not*. Yet we must bear in mind that publicity is by very nature educational, and that the conditions which call for education, or in our case publicity, may arise in a night or over lunch hour. While publicity men like to regard themselves as the original package of public trouble-shooters, yet our effort is usually quite as well deliberated as one would desire. What to publicate, if I may use the word, is as great a problem as when to publicate or whether or not to publicate at all—and the task of making everything clear in every detail to every man and woman who ought to know is exemplified by the case of that bewildered Philadelphian who, when he first read of the Bell-Western Union joint service arrangement, said: "Joint service!" Well, well; that's funny! I thought the police had closed them all up." And may I add here that the other departments are evidencing a most gratifying cooperation and consideration in publicity's endeavor to cover the whole field of our mutual business undertaking at the immediate moment of necessity. Without this help from the other fellow the somewhat unusual period we have just gone through would have left much undone from the standpoint of public knowledge.

I believe it was a Bell colleague from the Coast who recently illustrated the wonderful speed at which this business of ours is progressing by telling the story of one Bud Henderson who came down to 'Frisco from Tacoma in the days when the latter city was experiencing that period of mushroom growth that has characterized so many western communities. And in 'Frisco Bud ran across a fellow townsman, whom he greeted effusively something like this: "Hello, Jim; when'd *you* come down from Tacoma?" "Left there Thursday night," replied Jim. And then what a patronizing look of superior knowledge, mingled with pride, overspread Bud's features as he exclaimed: "Pshaw! I didn't leave there till Friday noon, and ye ought to seen her then."

And so it is with the telephone business—at least so does publicity see it. A few mornings ago I landed in Pittsburg chock-full of the big things that had just been "General Ordered" and "Rate Circularized" from Philadelphia; but by noon a special from headquarters advised us that these big things had been signed, sealed and the goods delivered, and that another batch was on the fire. For somehow 5 P. M. may leave us a clean desk, but 8.30 A. M. ushers in a Traffic or Plant or Commercial epoch-maker that will cause some general head-scratching.

Only a month or two ago the Philadelphia Commercial department "started something" of this nature. You will remember that a local department store leased some twenty circuits to suburban points with the object of furnishing service from these points to the store free of toll. Without indulging in personalities, I may add that that day witnessed a mighty happy and hopeful crowd of commercial men—and well it might. But what could such an innovation accomplish, starting, as it was, without publicity?

So publicity joined forces and a campaign was

outlined. It was foreseen that the store must acquaint its customers with the scope and operation of this new and special service, that the greatest possible publicity should be given to every feature. Accordingly a man from this department was deputized to cooperate with the store people in making of all this common knowledge. Advertisements were written, big striking displays, and inserted in the newspapers of this city and the suburban points affected by the innovation. Telephone directory advertising space was subscribed for, and an endeavor made to spread the glad department store tidings to every one concerned. With the aid of our copy forces, the store printed and distributed thousands of folders to its customers, going over again the details of the service; and, lest the method of telephone buying might not be entirely clear, a space in its daily newspaper advertisements was devoted to "Telephone Suggestions," every day helps to telephone shoppers.

By continual interviewing and questioning and investigating, our special agent in the store was able to suggest each day to the management some thought on telephone buying, some fifty to eighty word article that might appear with the merchandise advertising and explain how shoes, hats, silks, suits, etc., could be purchased by telephone, and satisfactorily, too.

By applying fine tooth comb methods to the store's practice of handling telephone calls and orders, we were able to advise how they should organize telephonically, how information should be disseminated, how records of customers should be kept, and how telephone salesmen should be developed and the art of telephone selling encouraged. Only yesterday did we turn over to the store management a comparatively complete treatise on these last two subjects, which will be printed and distributed among the salespeople under the title of "Telephone Selling Power."

This is not all, but it is sufficient to illustrate how seriously we have considered this problem. It afforded excellent opportunities for the very kind of publicity we desire—the publicity of our business by an outside individual—and we are positive of its effect. That other lines of trade are already promoting the buying-by-telephone and selling-by-telephone ideas we are aware. It is contemplated that we will shortly encourage this still further by a series of pamphlets directed to particular lines, showing the grocer and the coal man, the hatter and the druggist how to organize, cater to and secure this business which is theirs for the asking. Readers along similar lines have already appeared in the newspapers. These are being clipped and will be circulated throughout the commercial field, not as dogma, but as suggestion for even more comprehensive effort. So, too, with the results of our experience in assigning a man to special work with the department store referred to. These will be tabulated and distributed comprehensively. And lest some one may comment that we are taking all this too seriously, let me add that this enthusiasm has already reached the contagious point and cities like Allentown and Reading are now in line. To-day at least one department store in each of these communities acknowledges nothing to its larger Philadelphia sister.

As I have inferred, we are only too pleased to cooperate with the progressive merchant in laying out his buying-by-telephone advertising. And so, too, are we equipped and anxious to aid in the preparation of his folders and circular letters. I recall one Philadelphia merchant who has distributed a few dollars worth of letters among his prospective patrons, and only a day or two ago he vouched for something like two

thousand dollars worth of business *already* as resulting from these letters—business that came to him by Bell telephone in response to the request, inserted in these letters at our suggestion, that his customers **USE THE BELL** when ordering from him. As to whether or not all this is valuable publicity for the telephone company, I submit the question to you for answer.

The increase of our toll service usage has presented a publicity as well as an advertising possibility. The Commercial Department is actively engaged in selling this service, we in advertising it—or vice versa, if you will. But as I see it, there is a publicity job also. Not every one knows what toll service is, or how to use it. So with our bills, in our directories, and by means of slips, cards, letters and newspaper display, it is our province to explain what a toll call is, how to make one—and not so much what it costs, but what it signifies as a business and social force. Were this a commercial talk I might describe some interesting toll selling plans that are now in progress, but my particular job is to tell the public, not you.

You have perhaps noticed in the Company's newspaper that any merchant may have "Blue Bell" or "Special Attention to Telephone Order" newspaper and stationery cuts for the asking. Unfortunately or perhaps fortunately the distribution of these cuts rests with the salesmen, but they should be taken seriously. So, too, should the envelope and package stickers, the telephone call slips for hotels, and the "Telephone Your Orders" signs, that are available whenever Mr. Merchant wakes up to the fact that a certain amount of trade which he ought to have is getting away from him.

The proper signing of public telephone location forms no inconsiderable part of publicity work. Scores of druggists in Philadelphia have allowed us to make prominent mention on their walls and windows that *there* is the place to **USE THE BELL**. Public telephone receipts invariably increase after the placing of such signs; and, moreover, they have a wholesome effect upon the druggist, encouraging him to use the telephone and to teach his customers to. There is no reason why all storekeepers should not follow the example of one Atlantic City merchant that recurs to me. This man was progressive. He saw the restless, happy-go-lucky throngs streaming by—who were too care-free to more than read as they passed—and for their benefit he displayed a legend reading something like this: "Too Busy to Call in Person—Use the Bell—Telephone Us and Receive Special Attention and Immediate Delivery." As telephone publicity this is excellent, and is being encouraged everywhere. The March 1 issue of our newspaper shows two photographs of stores, one in Baltimore and one in Wheeling, which have been taught the virtue of featuring the telephone. It has been going on for some time, and has now gathered real headway.

By the same token there is virtue in it for us, so far as our own buildings and windows are concerned; and a trip to one of several cities I could mention would be convincing of the publicity to be obtained by the placing of a respectable sign on a respectable building of a thoroughly respectable company. We are now placing elaborate metal signs on all our buildings, and soon we expect, or at least hope, to have flag poles and Bell telephone bunting. It is all publicity and it is good.

You are familiar with another phase of this work, the courtesy campaign in which all Bell companies are at present interested. "Courtesy Between Telephone Users"—and, by the way, the writer of that telephone classic is a Bell of

Pennsylvania publicity man—has been made the keynote of a universal appeal to "do over the telephone as you would do face to face." We have printed it in our directories, the newspapers have copied it, and every other day some subscriber catches its import and requests copies to hang beside his telephone. These copies are furnished, in every style and shape, framed or unframed, to whoever requests them. And they are accomplishing much. Truly this is a new departure in commercial publicity, particularly in this era of "get there, never mind how, but get there;" and it all illustrates the value of publicity that is conservative and logical. Were this a sermon I might suggest—only suggest, mind you—that the doctrine embraced in that courtesy article contains not one jot of altruism. It presents benefits for its disciples just as it does for the other fellow; and as telephone men it is "up to" us to give it all the consideration it deserves every minute in the day.

And just as our courtesy campaign has met with public favor, so, too, has our Telephone Service Helps effort. We have found that our subscribers are willing and anxious to learn how to use their telephone equipment to the maximum advantage. We have gone into first principles in advising how to articulate, to speak with the lips close to the transmitter, and other details with which you are familiar. The fact that the public is adopting our suggestions is the best evidence of the timeliness of this endeavor.

Discussing publicity, it seems only natural to mention *The Telephone News*. Should any one doubt that the element of publicity enters into the being of our Companies' newspaper, I invite him to accompany me to the Managing Editor's office some second or sixteenth of the month, and hear his telephone fairly sizzle with delightful flow of protest that on occasion emanates from some contributor or otherwise edited employee who for some reason—we never know why—has been misquoted, misplaced in the organization or mis-something-or-other. Truly, but one conclusion can be drawn. This is, of course, a different brand of publicity from the one we have been discussing, but it very properly concerns the rank and file of our organization. I dare say the efficient employee or department needs no publicity of his or its accomplishment. But just as the public wants news of the Company's doings, so does Commercial want news of Traffic, and Plant of Engineering. And whether this is publicity or coöperation or some other desirable factor, it is essential to our progress—a point that cannot be too strongly accentuated. We are to-day, through the columns of *The Telephone News*, attempting more than gossip and tabulation. The objective point is, we believe, a thoroughly comprehensive publicity of what the companies, their departments, their divisions, their districts and their men are accomplishing. Call it a reward of virtue, a stimulus of still greater endeavor, or what you will, its effect is, as I see it, entirely wholesome; and an even greater measure may be fulfilled just as soon as every man feels himself a welcomed contributor, and puts aside the perhaps inherent bashfulness that now prompts many an employee to shun this inter- and intra-organizational publicity.

If I may be indulged for a moment in the use of the first person pronoun, let me describe to you the insider's view of the publicity job—not its requirements, but its associations. There is no reason, I presume, why I should not find it, as you find your daily work, a source of constantly changing enjoyment. But not for the reason advanced by the young matron we read about—in a recent issue of *Life*—who attended

some sort of physical culture or out-door exercise club, and when asked by the president of the organization if she was fond of sports, answered with some show of feeling: "I ought to be; I married one." So, not because I am "married" to this particular work do I find in it the amount of interest and enjoyment that spells industrial pleasure of a real sort. For does there not fall to publicity the task of making the public happy, which in itself precludes from our department the grouch and the malcontent?

Then, too, think of the fun of dabbling in oils and water colors, the pretty pictures, the word paintings, the twisting of thoughts and sentences so that their bright and appealing sides are presented; also the touch of newspaper work—among ourselves we call it journalism—and the general atmosphere of being in print and before the public eye.

And what is perhaps as great a source of satisfaction to us men in publicity—and I mean this, gentlemen—is the splendid help afforded us by the other departments in making our endeavor a productive one. There is, I presume, not a department or a division of a department on which we are not continually dependent for counsel and assistance. This get-together spirit has been most beneficial, and, may I again say, most appreciated.

It is difficult to conclude a talk of this sort without composing an epigram or drawing a moral, or crystallizing all these words into a single concrete thought. But let me adopt rather the good old-fashioned evangelistic method of closing with a brief appeal—an appeal for publicity of the kind that lies within the everyday reach of all of you men. As a department we are catering to the needs of the general public. The individual, though, must look to *you*,—and in that he is human, he is bound to have his troubles.

There is an inconsistency in man's make-up that prompts him to nurse in secret a feeling of discontent and protest to which he will not always give voice—and, as it sometimes seems, for the reason that he does not want to be convinced of his false perspective. You are undoubtedly familiar with this sort of man, for let's meet the issue squarely and appreciate that the large corporation by very necessity cannot leave the taste of milk and honey everywhere. And as we approach him, and as we recognize his misunderstanding or his grievance, let us give a little publicity to the scheme of things that has failed to call forth his appreciation.

As a salesman, I myself in the past have encountered subscribers of this sort whose was, let us say, a failure to recognize the propriety of our service charges. And perhaps too often I failed to bear with those subscribers in the thought that they had not properly diagnosed the case; that they had been mentally arguing and harping on the relation of these service charges, *not* with the value of the service to them, but with that very intangible cost of furnishing it.

And so do I say that there is a world of opportunity for publicity on the part of the sales force, the collection force, the installer, the inspector, and every other employee who comes face to face or telephone to telephone with the public individually. I will not attempt to cite examples, they will occur to you more readily than to me. Let us take this very seriously, gentlemen. It is quite as serious as any other situation that confronts us—for there's still a long way to go.

Mr. Casson has called this the "business with bells on." Good! Let us swing onto the rope, and make those bells ring.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic City District. The Philadelphia *North American* of March 17 printed an item to the effect that an Atlantic City telephone user had asked a local operator rather frantically for "the fire committee." His haste was interpreted by the operator to mean that he wanted to place a fire alarm and she acted accordingly. The item states that while the man stood waiting at the telephone the fire apparatus rolled up to his house and firemen rushed in inquiring the location of the fire. Explanations followed, and the patron finally reached the desired telephone.

The last meeting of The Philadelphia Telephone Society was attended by a large delegation from the Atlantic District. A special car was chartered on the Atlantic City Railroad and the members journeyed in a body to Philadelphia. The car attracted considerable attention all along the route due to the display, on the side, of a large sign bearing the Bell seal and reading "Special Car for the Atlantic City Members of The Bell Telephone Society of Philadelphia."

The Company is installing a 100 line switchboard, together with considerable outside plant, at Sea Isle City, to take care of the increasing demand for service in that community.

The salesmen of this district recently enjoyed the privilege of inspecting in a body the Company's entire Atlantic City plant, afterwards lunching together, and then joining with the rest of the local employees in listening to a paper called "The Telephone Prospect," prepared and read by the District Manager.

The Company is considerably enlarging its plant facilities in Ventnor by the addition of several thousand feet of feeder cable. This feature and the rear property distribution which is being pushed rapidly by the Plant department, will give us an opportunity to sell a higher grade of service than we have heretofore been able to offer.

Avis

Bridgeton Sub-District. An application has been signed by the Hess Steel Castings Company, which is building a modern factory in Bridgeton, for a direct line, monitor switchboard and 4 stations.

Several merchants of Bridgeton have adopted the use of coupon books, mailing them to people within a radius of twenty miles.

A rural line contract has been closed for 6 stations which will be known as the Glassboro Rural Telephone Company. This is the first rural company to be connected to the Glassboro exchange.

Applications for service have just been signed by thirty-five farmers in the vicinity of Cedarville.

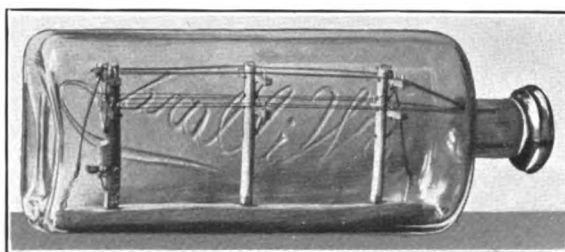
The local Plant department is now reconstructing one of the Company's heaviest farm lines. This was one of the first farm lines built and runs out of the Bridgeton exchange on the Shiloh pike. This line has grown to a 4 ten pin crossarm line, and the Plant department is now placing the fifth crossarm to take care of the increase in business. There are four other leads running from Hopewell township to the Bridgeton exchange.

One of the leading grocers of Bridgeton received on a recent Saturday morning 164 telephone calls before 10 A. M., every call meaning on order. This fact was mentioned in an advertisement which appeared a few days later, and the grocer also called the local manager to

thank him for the efficient service he had received during the rush of orders.

W. F. Lacroix, of this place, enjoys the distinction of being one of two wholesale nurserymen in the United States who make a specialty of growing French white lilacs. His nursery is located more than two miles east of Buena, Atlantic County, where he has over fifty acres devoted to the raising of this famous flower. The flower grows in two or three clusters on one stem, and it takes seven years from the time of planting for a flower to bloom. The flower is sold at \$2.50 a stem, wholesale, and Mr. Lacroix is just beginning to reap the benefit of his labor. He recently supplied a large order to the Gould-Decies wedding. Mr. Lacroix receives most of his orders by telegram from New York and other large cities, these telegrams being delivered to him from Buena, and in order to have better communication with the outside world, he has just built a telephone line of more than two miles to connect with one of our rural companies at Buena.

Lore



A Pole Line in a Bottle—[Constructed by a Delaware & Atlantic Lineman]

Camden District. A robbery was averted in Collingswood one evening last week by means of a telephone. A woman alone in her home heard a noise on the back porch and upon investigating found that somebody was trying to effect an entrance. Being equipped with a main telephone and extension service, she called our operator from the latter, asked for a number and got an immediate answer. Her son was visiting the person called, and upon the mother's urgent request for him to come home at once he and two other companions lost no time in complying. When they approached the house two men made their escape in the darkness.

Fruit culture in Camden and Gloucester Counties has become quite a study, and is being carried on with some skill. Land that has been considered of too wild a nature for the growth of grain and truck is being converted into orchards of pears and apples, and grape vineyards. Our representative was asked to attend a meeting of farmers last week in the vicinity of Laurel Springs for the purpose of establishing rural line service for those engaged in this work.

Croxtan

Dover Sub-District. That the telephone is appreciated by strange types of people was demonstrated the other day when a subscriber settled a toll bill amounting to several dollars. Not having had much of a toll bill heretofore, he relieved the clerk's curiosity with the statement that a band of gypsies was responsible for it. The "king" of a number of tribes of these nomads was encamped in a grove belonging to the subscriber, and each day the leader was in communication with the other tribes or bands in various parts of the Peninsula. There seemed to be a great deal of business to transact and the "king" received detailed reports and issued instructions in a very executive manner. He also had the good habit of paying his bills and always paid for the messages as soon as completed. On leaving this part of the country, the gypsy

leader thanked the farmer for his kindness, and said he didn't know what he would do without the telephone, as it enabled him to allow the bands to travel separately and ply their trade of fortune-telling while he kept in close touch with his lieutenants.

Prince

Doylestown Sub-District. The Bedminster Rural Telephone Company, connecting with the Perkaskie exchange, has been placed in service with 9 subscribers on January 1. It is now extending its lines, having just completed 6 additional miles of pole line on which to furnish service to about 25 new subscribers. The territory of this company is in Bedminster township, one of the most productive farming townships in Bucks County.

A subscriber of the Plumsteadville Rural Telephone Company stated to our rural line salesman that one day recently he made \$6.60 more on a load of rye than would have been the case had he not had telephone service. Having unlimited service to local buyers, he used the telephone and obtained the best prices.

Hennessy

Trenton District. A salesman of this district recently met a woman whom he tried to persuade to take telephone service. She related to him her history of how she had outlived three husbands, saying she had enjoyed the privileges of a telephone during the life of her third husband, but had been compelled to give them up at his death. She stated her willingness to have telephone service again, however, if the salesman could find her another husband. Unfortunately the salesman could not see his way clear to accept this opportunity for a sale of service.

A clipping from a local paper tells of a small boy who recently lost his bearings in the streets of Trenton. He could not tell the policeman who found him anything but "549-A." This sufficed, however, and by using a local telephone directory the child's parents were soon found.

A Trenton installer was called on to visit a local institution for the insane to replace a telephone that had been torn from the wall. While he was engaged in his work one of the patients came up, and touching him on the arm confidentially whispered that there was absolutely no use in going to so much trouble—he knew from experience that "you could grind away all day at that thing and not get a bit of music out of it."

Brown

West Chester Sub-District. A 50-pair new high-grade cable has just been completed between Downingtown and Exton, to be used to serve the people of that locality with a better grade of service.

Greenfield

Wilmington District. After several years the efforts of a Middletown salesman have been rewarded by superseding the Middletown Farms Company, one of the largest creameries in this section of the country, from a direct line, 3 extension stations and an obsolete switching device, to a No. 1 private branch exchange carrying 2 trunk lines and 5 stations. This is unusually gratifying, because these subscribers have been enjoying an obsolete rate at so low a figure that it was necessary to more than double their old rate.

Members of the Commercial, Plant and Traffic departments of the Delaware & Atlantic Telegraph & Telephone Company and the Diamond State Telephone Company in the State of Delaware have organized "The Delaware Telephone Club." The purpose of the club is to encourage cooperation between the three departments and for the open discussion of subjects mutually interesting. H. D. Hosfeld was elected Chairman and H. S. Meeds, Jr., Secretary and Treasurer, both for a term of six months.

Chambers

Hagerstown, Maryland

A Brief Sketch of Its Development



IN view of the fact that so many cities and towns throughout the country are putting forth apparently valid claims to prominence, it may seem superlative and

discriminative to name Hagerstown, the county seat of Washington County, Maryland, as one of the thriftiest and most attractive of the smaller Eastern cities. It may appear a stretching of the truth to serve a temporary purpose, but in reality such a designation is no more than fair.

Hagerstown was well planned by its founder, Jonathan Hager. Old Captain Hager came over from Germany about 1730 and settled on a tract of land that became known as Hager's Delight. He soon saw that a town laid out in the midst of a place blessed by such fertility of soil, equability of climate and abundance of water, could scarcely avoid prosperity; and from his idea grew a village called Elizabeth Town, after his wife. Later it came to be known as Elizabeth Hager's Town, and finally Hagerstown. It prospered in a manner consistent with the hopes of its founder, and to-day is a live and beautiful little city of twenty thousand inhabitants.

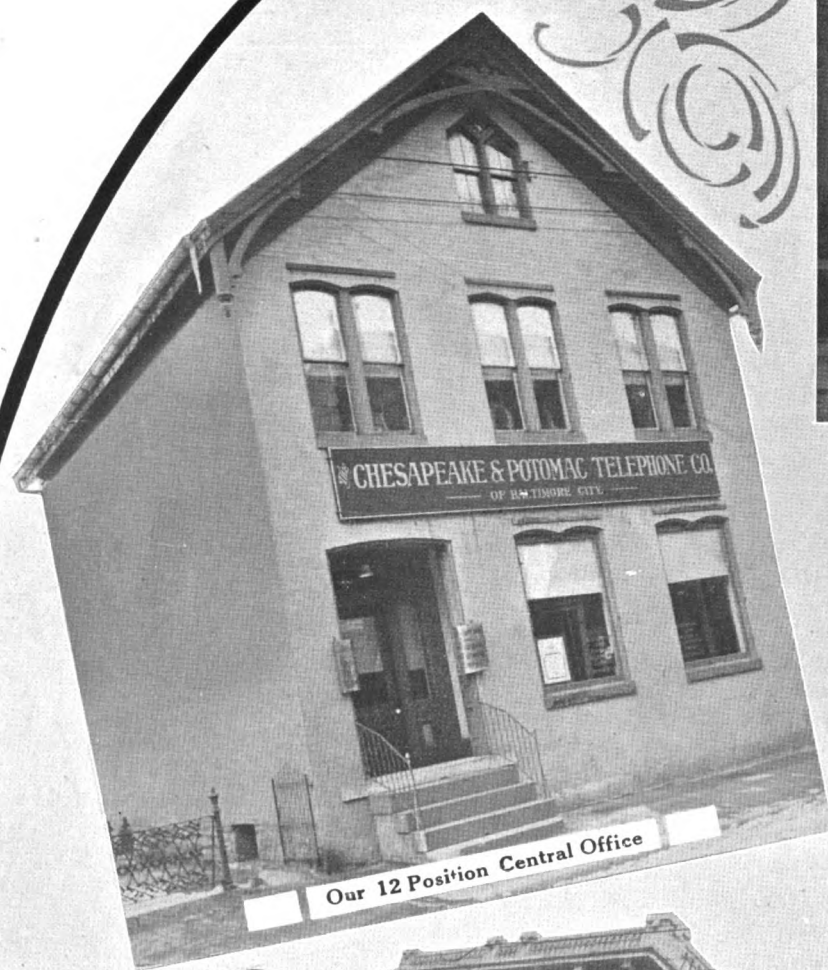
Geographically Hagerstown is fortunate, to say the least. It is situated near Antietam Creek, in the fertile Hagerstown Valley, 87 miles from Baltimore and 75 miles from Washington. Five railroads center here and drain a magnificent section of country, decidedly the richest in Maryland, and embracing some of the best parts of Pennsylvania, Virginia and West Virginia. Interurban trolley lines supplement the steam railways, and in addition the town is a point of convergence for a number of admirable turnpike roads. All of these arteries contribute greatly in building up local trade. They have been of much value in attracting the forty odd manufactories of importance that now make Hagerstown their headquarters. In the long list of products issuing from their plants are automobiles, organs, knitted goods, furniture of all kinds, finished and unfinished lumber, carriages, metal products, mattresses, brooms and wooden pins. In other words, anything from pins to automobiles.

It may be interesting to know that Hagerstown's products have been varied from its very earliest days. Thus, in an early history of the place we find "the making of snuff, combs and buckskin breeches" called the chief industries of the neighborhood. Two of the most famous features that survive these times are the Hagerstown Almanac, and the widely known "Great Hagerstown Fair."

Judging from the results that prevail in many cities noted for manufacturing it is a far cry from the utilitarian to the beautiful. All too often, when energies are bent to the getting and holding of business interests, municipal bodies fail to keep up the scenic standard of their communities. It is not so in this city. A happy combination of the two qualities obtains in practically all parts of the town. Particularly notable are the beautiful gardens and enclosures surrounding many homes as well as buildings housing semi-public and private enterprises. It follows, naturally, that social activities of the sort which so often makes life south of the Mason and Dixon line especially worth while, take an important place among the features of the city.

The Chesapeake & Potomac Telephone Company has good reason to be gratified with the

(Continued on Page 9)

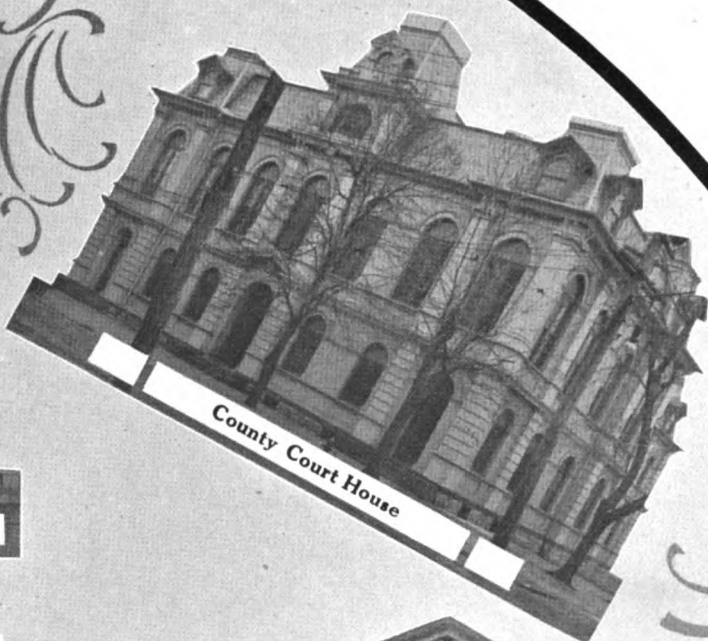


First National





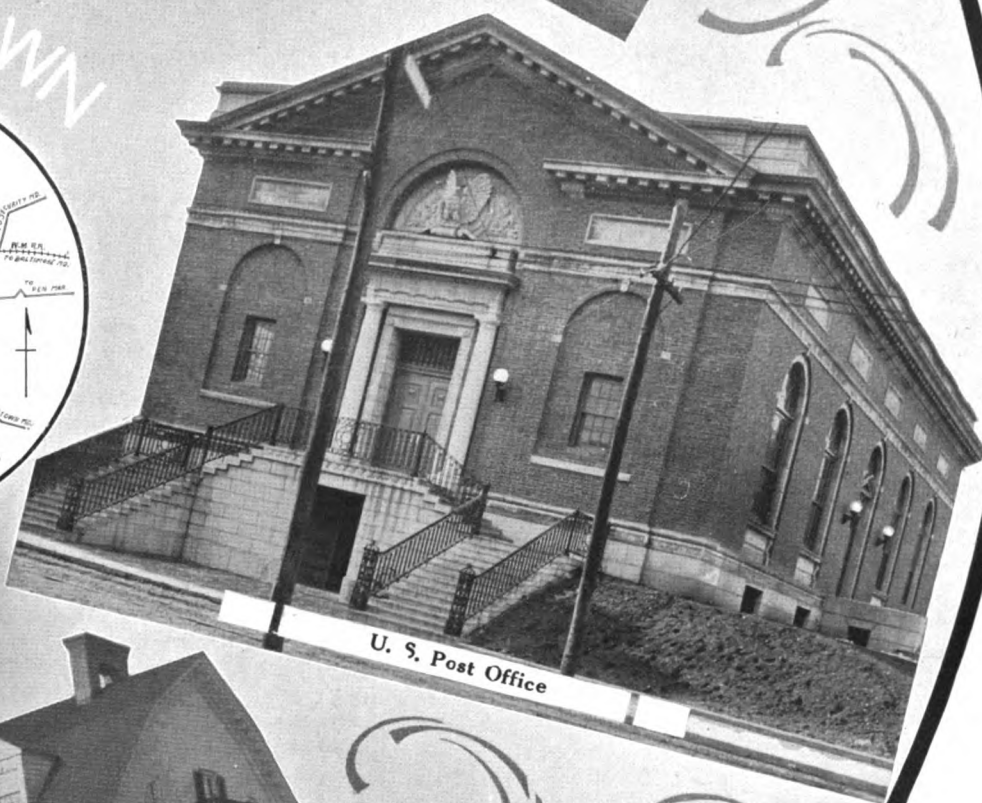
Bank



County Court House



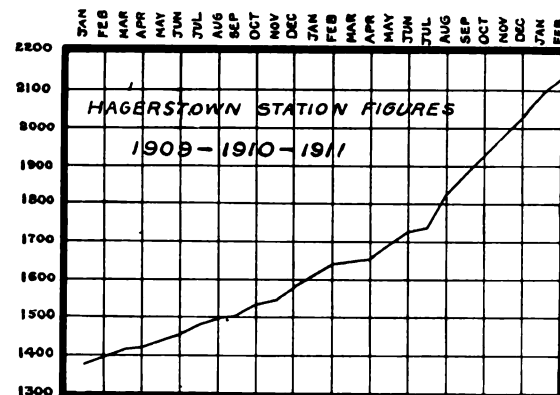
STOWN



U. S. Post Office



Residence of Sam'l Suter



Hagerstown, Maryland

(Continued from Page 8)

support given to it by local patrons and subscribers, and, although the telephonic growth of the city has not been so phenomenal as in some instances that might be cited, "the development of the telephone habit" has proceeded in a steady, satisfactory manner. Especially pleasing are the results of comparatively recent efforts to enlarge the Company's list of subscribers. Suffice it to say that about four years ago larger quarters were needed. A large building was purchased at once, a new switchboard was installed on the second floor and the first floor was entirely occupied by Commercial and Plant Department forces. During the last year 3 new positions of switchboard have been installed and approximately 29,000 feet of underground and aerial cable placed. As a climax, plans are now under way to install 8 more switchboard positions and to erect 15,000 additional feet of cable.

During the last 10 years Hagerstown's growth in population was 37 per cent.; in half that period—in the last 5 years—its telephone growth has been 57 per cent. There are now (March 1) 2,126 telephones connected with the Company's local exchange, and the number is being rapidly augmented.

In conclusion it may be conservatively said that Hagerstown is sure to continue in the path of well-balanced prosperity. It offers opportunities for manufacturing, especially, that are unequalled in Maryland. It has natural advantages in full measure—fine climate, plentiful water supply and fertile surrounding country. In close proximity lie the far-famed coal fields of neighboring states. Furthermore, the trend of heavy manufacturing is from big cities to smaller ones. This, perhaps more than any other one thing, is being the making of Hagerstown and the logic of the case clearly indicates that the city is approaching a brilliant future as a manufacturing center.

Rural Development in the Vicinity of Hagerstown, Md.

A number of farmers' telephone lines are being constructed in the vicinity of Hagerstown in connection with the Chesapeake & Potomac system. In a few days one will be finished embracing a number of farmers in the neighborhood of Beard's Church, and another will soon be working among farmers around Leitersburg. Several others will materially increase the list in a very short time. One farmers' line has already been finished for farmers living in the section north of Smithsburg and between that place and Leitersburg.

American Telephone and Telegraph Company

Summary of Annual Report. Bell Telephone System.

TO GET a proper comprehension of the business of the company as a whole, the combined balance sheet and earnings statement must be considered rather than the balance sheet and earnings statement of the American Telephone and Telegraph Company alone.

The interest of the American Telephone and Telegraph Company in its associated operating companies is over 80%, in addition to which it has its own earnings. The American Telephone and Telegraph Company's share of the surplus earnings of the Bell System is approximately 90%, so that the showing of real interest to the security holders of American Telephone and Telegraph Company lies in the figures of the Bell System as a whole.

The number of exchange stations connected with the Bell System December 31, 1910, was 5,882,719, an increase of 740,027 for the year. The increase for the year was nearly as great as the total number of exchange stations ten years previous. Of this number 1,852,051 were stations of independent companies, called connecting companies, operating as a part of the Bell System under sub-license or connecting contracts.

The total wire mileage, not including that of connecting companies, in use for exchange and toll service was nearly 12,000,000 miles, an increase of nearly 1,200,000 miles for the year. Fully one-half of the exchange wire mileage is underground. There were 167,800 miles of toll and long distance pole lines, with nearly 2,000,000 miles of toll and long distance wires. The public indulged in over seven thousand million conversations during the year at an average cost of a little over two cents a conversation.

Plant additions during the year cost \$53,500,000. The total addition to plant in the past 11 years amounted to \$460,750,000. The total property additions during the year were \$84,000,000.

There were applied out of earnings for maintenance and depreciation during the past eight years \$283,500,000.

It is intended to expend on new construction work about \$60,000,000 during the current year.

The gross revenue collected from the public in 1910 for telephone service by the Bell System—not including the connected independent companies—was \$165,600,000; an increase of nearly \$16,000,000 over last year. Of this operation consumed \$54,000,000; taxes \$8,000,000; current maintenance \$25,700,000; and provision for depreciation \$26,200,000. The surplus available for charges, etc., was \$51,000,000, of which \$11,550,000 was paid in interest, and \$25,000,000 was paid in dividends to the public.

The average earnings per exchange station for exchange service were \$31.28, as against \$44.68 for the year 1900. The average net earnings, including toll earnings, per exchange station, were \$10.15, as against \$15.60 in 1900. The average construction cost per exchange station was \$117.00; including the toll lines, \$142.00, as against \$199.00 in 1900.

The report of the American Telephone and Telegraph Company alone shows net revenue for the year \$31,933,214.49, out of which interest amounting to \$5,077,321.33 and dividends amounting to \$20,776,822.12 were paid. The balance, \$6,079,071.04, was an increase over last year notwithstanding the increase in charges due to conversion of bonds into shares. At

the end of the year there were about \$39,000,000 bonds outstanding, which have since been reduced to about \$30,000,000.

The number of shareholders December 31, 1911, was 40,381, an increase of 4,558. 40,087 held less than 1,000 shares each, 266 held from 1,000 to 5,000 shares and 28 held over 5,000 shares each. The total holdings in blocks of 5,000 or over were less than 10% of the total stock; less than 8% of the stock was in the hands of brokers, and a majority of the stockholders are women.

There will probably be an issue of shares during the year, the time and amount to be determined later.

At the end of the year the premium account amounted to about \$17,000,000; that is, the amount of cash paid into the treasury in excess of par of obligations outstanding.

During the year a great deal of attention has been given to some scheme for Pensions and Savings which would be of the greatest possible benefit and assistance to the employees, and if possible, a substantial improvement on any scheme now in force.

Independent Companies.

Our policy in respect to the opposition and independent telephone systems has been consistently followed through the year. Wherever it could be legally done, and done with the acquiescence of the public, opposition companies have been acquired and merged into the Bell System.

Most of the opposition exchanges have been built up in a selected territory with capital obtained by the promise of, or in anticipation of large profits; as a rule capitalized far in excess of the plant value or construction cost. Subscribers have been obtained by promises of improved service at low rates. Many of such exchanges owe what success they have, where there is any success, to personal local influence or interest. Many, if not all, have been a disappointment. The day of local telephone exchanges or limited telephone systems has gone. This is recognized and fully appreciated by those who have exploited or are operating them.

The entire disregard or underestimating of depreciation and future replacement, is the cause of nearly all the financial disasters that have occurred in the telephone business, and has been the common failing of new comers in the telephone field from the beginning to the present time.

Current repairs on new plant, even of the old time temporary character, were small; no surplus or reserve was provided; profits were apparently large, as were dividends.

A false atmosphere of prosperity surrounded the business which was not dispelled until replacements of plant through decay or obsolescence became imperative. The inevitable was in some cases postponed by excessive charges to construction account, but came in time, as it is bound to come under such conditions.

There is no question but that the public are tired of dual telephone exchange systems, and that so fast as confidence in protection against the real or imaginary evils of monopoly increases, opposition against mergers will decrease.

This condition can only be brought about by putting before the public the fullest and most detailed information as to the company, its policy and purposes.

Public Relations.

The position of the Bell System is well known. It is believed that the telephone system should

be universal, interdependent and intercommunicating, affording opportunity for any subscriber of any exchange to communicate with any other subscriber of any other exchange within the limits of speaking distance. It is believed that some sort of a connection with the telephone system should be within reach of all, a system as universal and as extensive as the highway system of the country which extends from every man's door to every other man's door.

It is not believed that this can be accomplished by separately controlled or distinct systems nor that there can be competition in the accepted sense of competition.

It is believed that all this can be accomplished to the reasonable satisfaction of the public with its acquiescence, under such control and regulation as will afford the public much better service at less cost than any competition or government-owned monopoly could permanently afford and at the same time be self-sustaining.

It is impossible to define the territorial limitations of a telephone system because from every exchange center communication is wanted up to the talking limits in every direction. But whatever may be the form of the operating organization, there is bound to be for legal purposes and the holding of franchises, some sort of subordinate state organization which will bring the business and property in each locality under the jurisdiction of the State in which it is situated and operated.

There can be no rivalry or competition between local exchanges in adjacent territory. Those desiring the service of exchanges in adjacent territory in addition to their own can get it much better and cheaper through their local exchange. To give direct individual wires from one exchange territory into another would be impractical from the multiplication of lines and prohibitive on account of cost.

Corporate Organizations and Combination.

Corporate organization and combination are the necessary and logical solution of the problem of caring for the wonderful development which has been going on all over the world, and particularly in this country, in the recent past.

Combination only can cope with that industrial development of the present time, which is far beyond the scope of individual effort or capital. In those good old times, one man, with his own capital, could carry on even the largest operations. The margin of profits due to low wages and large selling prices enabled the owners of such individual establishments to live and enjoy the best to be had in those times, and amass fortunes—fortunes relatively as large as any of the present—from an amount of gross business, the profits from which to-day would not be sufficient to pay the wages of a shop superintendent.

The large capital requirements necessary to conduct business on modern lines, place modern industrial enterprises either beyond the financial ability of any one individual, or far beyond the amount that any one individual wishes to have in any one venture.

That there has been in large measure reason or cause for the existing unfavorable public opinion as to corporations, trusts and combinations, is beyond question, but it does not follow that there is reason or cause for the wholesale denunciation and condemnation of all corporations, trusts and combinations. Nor does it follow that all that is bad is centered in or confined to those prominent in the public eye.

Public utility corporations and other combinations have too frequently assumed that new laws and regulations were disastrous and ruinous

without first giving them a fair trial, and legislators too often have displayed an ignorance or disregard of existing laws, spreading the idea that new legislation was a cure-all for any undesirable condition, while it was often only a political play, and the enforcement of the existing laws was utterly neglected.

What is and should be condemned, prevented and punished is the abuse made of corporate machinery to the detriment of public welfare and such abuse as has been and is being practiced so extensively for purely speculative and oftentimes swindling enterprises.

The large corporate combinations which often in popular opinion are supposed to be owned or wholly controlled by some one man or some few men, are, in fact, made up of thousands and tens of thousands of silent partners, the shareholders, who are the real owners. The existence of these real owners, these shareholders, is often obscured in the shadow of some one or more individuals who dominate these companies, not by large ownerships, as popularly believed, but by administrative and operating aggressiveness and successful management. The shareholding owners are in the aggregate very numerous and, in any other country than America, would be frequently in evidence and heard from, would always take an active participation in all meetings, annual or special, and would in that way protect themselves and their holdings by associating the corporation or combination in the minds of the public with the particular and separate individual ownerships, or interests in them. In this way that same protection, recognition or consideration, to which all interests, whether individual or corporate, are alike entitled, would be assured.

Public Utilities.

The "Served" and the "Servers."

Public Control.

Public control or regulation of public service corporations by permanent commissions, has come and come to stay. Control or regulation exercised through such a body has many advantages over that exercised through regular legislative bodies or committees. The permanent commission will be a quasi-judicial body. It should be made up of members whose duty it will be, and who will have the desire, the time and the opportunity, to familiarize themselves with the questions coming before them. It should act only after thorough investigation and be governed by the equities of each case. It would in time establish a course of practice and precedent for the guidance of all concerned.

Experience also has demonstrated that this "supervision" should stop at "control" and "regulation" and not "manage," "operate" nor dictate what the management or operation should be beyond the requirements of the greatest efficiency and economy.

Management or operation requires intimate knowledge and experience, which can only be gained by continuous, active and practical participation in actual working, while control or regulation can be intelligently exercised, after judicial hearing, by those who have not the knowledge or experience to operate.

Such "control" and "regulation" can and should stop all abuses of capitalization, of extortion or of overcharges, of unreasonable division of profits.

If there is to be State control and regulation, there should also be State protection—protection to a corporation striving to serve the whole community (some part of whose service must nec-

essarily be unprofitable), from aggressive competition which covers only that part which is profitable.

Governmental control should protect the investor as well as the public. It should ensure to the public good service and fair rates. It should also ensure fair returns to the investor.

A public utility giving good service at fair rates should not be subject to competition at unfair rates.

Through a wise and judicious State control and regulation all the advantages without any of the disadvantages of State ownership can be secured, and State ownership doomed.

State control or regulation, to be effective, should, when exercised, be accepted and acquiesced in by the public. If all the decisions not in exact accord with the desire or contention of the public are condemned, if it is expected and required that all decisions be against the utilities controlled, if politics and political effect are to govern decisions, if decisions go for nothing with, and are not respected by the public, failure and disappointment are bound to follow, self-respecting men will refuse to act, the standard of appointments will fall, and State control and regulation will become a disgrace, and the evils which it was intended to correct will multiply.

If any company gives good service, meets all the reasonable demands of the public, does not earn more than sufficient to provide for the maintenance of its plant up to the latest standard and for reconstruction of plant when worn out or obsolete, pays only fair dividends to its shareholders—if a company is only doing this, its rates and charges to the public cannot be unreasonable.

Competition vs. Control or Regulation

Effective, aggressive competition, and regulation and control are inconsistent with each other, and cannot be had at the same time.

Aggressive competition means duplication of plant and investment. The ultimate object of such competition is the possession of the field, wholly or partially; therefore it means either ultimate combination on such basis and with such prices as will cover past losses, or it means loss of return on investment, and eventual loss of capital. However it results, all costs of aggressive, uncontrolled competition are eventually borne, directly or indirectly, by the public.

Competition which is not aggressive, presupposes coöperative action, understandings, agreements, which result in general uniformity or harmony of action, which, in fact, is not competition but is combination, unstable, but for the time effective.

There can be no competing exchanges unless each exchange has substantially the same list of subscribers, which is in itself inconceivable.

It is not telephone service per se that an exchange affords; it is a particular, definite telephone connection between two people which can only be given between two parties connected with the same exchange or the same system. Each of the several independent exchanges in the same community offers you telephone service, but telephone service only with its particular list of subscribers.

To be in a position to obtain full telephone service where there are opposition exchanges, subscriptions to all are necessary.

In all other opposition utilities, to get the full service one or the other is paid—not both.

When anyone decides to become a subscriber to an exchange he does not go to the one which offers any other inducement than the ability to connect with the people with whom it is the

habit or necessity of the person subscribing to communicate.

But two exchanges offering different lists of subscribers are not competing even in that sense, as neither is a substitute for the other, in that on one you may have communication with certain people, and on the other with certain other people.

Physical Connections

Physical connections would connect these separate exchanges by trunk lines the same as exchanges belonging to one system are connected. A fairly satisfactory service could be given if all of the exchanges had the same general style of equipment, uniform operating methods, and if harmony and concert of action between the operators of entirely independent and rival exchanges could be assured.

But what has been accomplished? You have enabled any subscriber to any exchange to communicate with any subscriber to any other exchange. You have not avoided the objectionable duplication. You have not given service to all the exchanges for one subscription. This can only be done through merger or combination, not by physical connection. For the privilege of this physical connection with the other exchanges the subscriber to any one of the exchanges must pay.

A telephone exchange does not furnish a commodity, does not transport goods, nor does it transmit messages; it places at the disposition of any subscriber a telephone circuit, connecting such subscriber with another person at a distant point. It must be continuous and unbroken; it is for their exclusive use. The employees of the exchange render no other service than to form this circuit, and putting the parties in communication. To do this, satisfactorily, the operator at the starting point must have either control of or perfect working unity and harmony of action with all the operators of all the trunk lines and exchange lines necessary for this circuit.

These conditions can only exist where there is a strong, common interest or control.

Physical connection demands the exclusive use of an integral part of the property and facilities and operating staff of one company for the customers of a competing company, no matter how urgent may be the owner's necessity for the immediate use of such property and facilities, nor how small the surplus facilities beyond the owner's requirements.

If the service consisted of carrying packages or transmitting messages along with other packages or other messages, or hauling cars to their destination, or accepting through tickets or transfers from connecting or cross lines of travel, it would be very different. In such cases the property, facilities and operation remain in the control of the owning company or its operating staff; no property intended for the benefit of the customers of one company is put to the exclusive use of another company; all that is done, is the same as is done with and for all comers.

The idea of physical connection is born of a desire to get for these local and isolated competing or opposition exchanges or these comparatively limited exchange systems, the advantage of the more extensive, comprehensive Bell System. To get for their subscribers all the advantages enjoyed by subscribers of the Bell exchanges by giving them the use of a part of the Bell System.

Physical connection would force the Bell System to place at the disposal of and under the

(Continued on Page 12)

Amer. Tel. & Tel. Company

(Continued from Page 11)

control of any opposition company, Philadelphia for instance, for the time being, one of its circuits from Chicago to Philadelphia, to connect that Bell circuit with the circuits and system of the opposition company and disconnect it, for the time being, from the circuits of the Bell System.

No possible compensation would be adequate for such service or such deprivation.

One of the arguments for physical connection is that it will stop duplication. Neither exchange could stop competing for subscribers. The exchange that did would soon dwindle to a point of absolute undesirability; in other words, to a point where the subscription list would offer no inducements to others to join. Consequently activity must be maintained, each exchange making every effort not only to retain all on its list of subscribers, but to add more. The same territory must be covered, the consequent duplication of conduits, pole lines, central and branch offices must continue; in fact, the strife or competition would have to be more severe.

Is there anything in practice, law or precedent that can compel one system, built upon a comprehensive basis, and trying to meet all the requirements of the public, to turn over its physical property for the use of so-called competitors—opposition exchanges built in selected territory with selfish views or motives? Is there anything to compel one to share the prosperity of a business created by enterprise and advanced policy with those who wish to appropriate the benefits of such work? Can any public utility company be compelled to divest itself of the operating control of its own property which was created for and may be needed at any time in the conduct of its own business? This is not the kind of interchange of business contemplated by the rules governing common carriers. It is not coöperation. It is pure and simple confiscation.

Telephone and Telegraph

The relations between the telephone system and the telegraph system are complementary.

Telephone service annihilates distance in that it brings parties at distant points into speaking distance with each other.

Telegraph service annihilates time in that it instantaneously transmits written messages between different points.

The telephone provides something to be used by the public themselves.

The telegraph performs a distinct service for the public.

A telephone "circuit" consists of two copper wires of superior construction, arranged in a particular relation to each other, forming a metallic circuit equipped with auxiliary apparatus, loading coils, etc., connected with a switchboard—all very complicated and elaborate.

A telegraph "circuit" consists of one wire at most—a grounded circuit. This wire can be divided into several distinct "circuits."

A telephone "circuit" cannot be used for telephone purposes by any but the two parties in communication, during the time of such communication, but the same telephone "circuit" can, at the same time it is being used for telephone service, be divided into two, four or even eight telegraph "circuits," each of which can be used for the transmission of telegraph messages.

The possible use of a telephone circuit is limited

by the necessity of the personal presence on the circuit of the parties communicating; by the time necessary to get both parties on the circuit; by the time taken by the communication, and by the intervals lost while waiting for parties.

This limited capacity, together with the costly character of the telephone circuit, makes distance the important controlling element in the cost of telephone toll line or long-distance service.

The ratio of the possible number of telegraph messages over the same wires compared to the possible number of telephone communications is very large.

The use of the telephone for telegraphing messages is limited economically to short distances and the possibility of either being used indiscriminately or interchangeably to *very short distances, or to other particular situations.*

Any attempt on the part of a telephone company to do a regular "telegraph business" would necessitate a "telegraph" operating organization in addition to its "telephone" operating organization.

Before a telegraph company could do a "telephone business" it would be necessary to reconstruct and rearrange its entire wire plant; to construct and equip central offices, distributing subways and lines, subscribers' connections and stations, at a cost of several times its existing telegraph wire plant, and also to create a distinct "telegraph" operating organization.

The large economies are in the joint occupancy and the joint use of the trunk "wire plant." There are in the distributing and branch lines of both services large plant and operating facilities; where to maintain any office there must be utilized the office and employees of some business which has first claim on the service and attention of such employees. Under these conditions satisfactory service is impossible. This waste incident to separate service could be almost entirely eliminated by joint use or occupancy, and by bringing the business entirely under one common control or influence the efficiency and the reputation of the service could be greatly improved.

Cheap service comes from full loads. In the wire service this can only be had by employing the plant to its full capacity *all the time.*

In some lines of business, like the transportation of passengers, where the unit of service is the car mile, and the overload capacity of the car is large, the average load can be greatly increased by making use of the "overload" during the few hours of maximum business. In no other way could the prevailing cheap fares be afforded for such long hauls.

In the electrical transmission of intelligence there can be no overload. *Cheaper service can only be given by the development of new or additional uses which can be distributed over the time now unused.*

Up to the present time the telegraph and cable business has been developed wholly on lines of *expedition.* Theoretically at least there should be no possibility of any further expedition, of any rush or special service, beyond what should now be given.

In the great possibilities of electrical transmission of intelligence some uses will be found or developed to absorb and utilize this enormous waste, by furnishing a service which would be satisfactory to such of the existing business as has heretofore had no alternative, but would prefer the new service.

The Night Letters—the first attempt—met with popular reception and is filling a definite place in the business and social world. The Day

Letter, so recently introduced that its possibilities cannot yet be determined, will doubtless find its place.

It is also intended to extend some of these new classes of service to the transatlantic cables as soon as it is made possible by the completion of negotiations and arrangements now pending.

Until the economies, which may result from the joint occupancy or joint use are determined, there will be no changes made in the present conduct of expedited or regular service. Whether all or only part of the economic waste will be absorbed in the other classes of service is a question yet to be answered; until answered anything that might result adversely either to the quality of the service, the extension and introduction of new services, or to the reasonable profits to which the companies are entitled, would be foolish and uncalled for.

Résumé and Conclusion

The following condensed summary of some of the principal things shown in this and previous reports is made with the purpose of taking away any excuse for further repetition or publication of those misstatements, distorted facts and erroneous conclusions which, for various reasons, are circulated from time to time.

The total outstanding obligations of the Bell System in the United States, not including the manufacturing company, amount to \$580,000,000.

The book value of the property representing these outstanding obligations is \$696,700,000, \$116,000,000 in excess of the outstanding obligations.

There is no water in the capital of the American Telephone and Telegraph Company; the excess of cash paid into the treasury over the outstanding obligations at the close of the year amounted to nearly \$17,000,000.

The cost of construction, including toll lines, per exchange station has steadily decreased from \$199 in 1900 to \$142 in 1910.

There has been a continual decrease of the average annual charge for exchange service from an average of \$44.68 in 1900 to \$31.28 in 1910.

The taxes paid in the year 1910 by the Bell System amounted to over 5 per cent. of its gross earnings, 16.4 per cent. of its net earnings, and 1.4 per cent. of the value of its telephone plant.

The control of the company is not vested in any one interest nor has it been used for the benefit of any individual or group of individuals.

The American Telephone and Telegraph Company is not in the accepted sense a trust, nor has it been built up by absorbing competing companies. While the Bell System is made up of separate corporations, these corporations are not, never have been, and never could be in competition. Under any system of organization or under one ownership, separate companies are necessary for the purposes of State jurisdiction.

A universal and comprehensive telephone system cannot have any operating limits, but must give unbroken, continuous, connecting circuits under one control, from every subscriber's station in every direction to the limits of telephone speaking possibility.

Bona fide competition between local exchanges cannot exist, owing to the peculiarities of the service rendered by these exchanges.

Physical connection does not and cannot bring about any economical or beneficial result and increases instead of decreases the evil of dual construction and subscription.

Physical connection would give to subscribers of an opposition exchange the service and use of property provided for the use of others, and for which others pay.

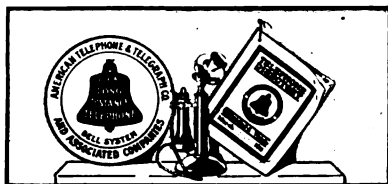
The Bell System maintains a large experimental and engineering department, not for the purpose of suppressing new inventions and improved methods, but for the purpose of developing the value and efficiency of anything that is new.

The construction, equipment and operating methods of the Bell System are the standard the world over. The equipment of the exchanges of the whole world is either the same as, or is modeled upon, that of the Bell System. No construction, equipment or operating methods rejected or "suppressed" by the engineering experts of the Bell System have ever yet come into prominent use.

The profits on Western Electric sales to the operating companies of the Bell System are less than on sales to the independent companies.

It is also shown that the telephone service and the telegraph service are complementary, not competitive; that joint use and joint occupancy of wires will reduce operating cost, maintenance charges and construction investment. That utilizing the unutilized facilities of both will make possible new, additional and useful services of both telephone and telegraph, for the benefit of both the corporations and the public.

Hidden Tele- phones



THE value of telephone service, as we all know, lies in the means, which it offers, of communication with other stations in the system.

The only accurate medium through which one subscriber may learn what other stations are in service is the telephone directory.

Traffic depends to a large degree upon a complete as well as an accurate record of the telephones in service. Inasmuch as we are striving for traffic, it is important that we should list all telephones.

The rate book states that when a subscriber requests that a station be not listed, the salesman should indorse the application with the words, "Do not list," and request the applicant to initial the indorsement. In many cases (some say in the majority of them) the omission of the listing is a result of poor salesmanship. When a man says, "I guess you'd better omit the listing; I prefer not to be bothered with business calls while at home," the tendency is to say, "All right; I'll arrange that for you."

With the average sensible applicant, a little sound reasoning on the part of the salesman will overcome any imaginary objections and the telephone directory will grow as it should grow.

Has the Company a salesman worthy of the name who, knowing that an applicant needs better service or additional equipment, hesitates to broach the subject? Then why hesitate to show the loss through non-listed stations? Many a subscriber with unlisted residence service has inconvenienced his business associates and his friends because of a notion which even mildly would be termed "biased." Few indeed are the vocations which justify the omission of telephone directory listings.

In some localities the total of unlisted telephones has reached a figure at which the problem ceases to be one of annoyance to other subscribers and becomes one of plain revenue to the Company. A hundred unlisted stations are a serious matter in a small exchange, and in a large exchange a growing list of "hidden" telephones is a loss in revenue that is not to be disregarded. If the average residence station ordinarily originates one message a day and each outgoing message from a listed station results in one inward message, the Company's loss from non-listed stations is enormous. Traffic from even flat rate stations tends to increase the traffic from other classes as well as toll service.

In addition to the non-listed residence stations there are those of private branch exchange stations off the premises, church stations, theatre stations, stations in private offices of politicians, professional men and ordinary business people, public and private schools, sanitariums, hospitals and other institutions—many of which for various reasons are not listed. It is probable that the incoming traffic at these places may be carried by the opposition service if such exists at these locations.

Keeping in mind the fact that through the directory alone the public may know that telephones are in use, and, remembering also the non-listing of certain subscribers may usually be avoided by the exercise of a high grade of salesmanship, it is believed that not only may further orders to omit the listings be reduced, but that many of those omissions now in force may be corrected. It may be that a removal from room to room, or, in the installation, an extension station, or of an auxiliary line and station will handle the proposition. It may require several visits and tactful arguments. Whatever the work may be, we as genuine Bell salesmen are qualified to solve this or any similar problem and we should do it.

Telephone Societies

The Philadelphia Telephone Society

1420 Chestnut Street
April 4

Speaker: J. Cunningham, Superintendent of Construction.

Subject: "Construction Work;" Illustrated.

Altoona Plant Class

1110 Thirteenth Street
April 4

Speaker: W. A. Gilbrandson.

Subject: "Underground Conduits."

Reading Plant School

31 North Fifth Street
April 4

Reader: H. A. Hohl.

Subject: "Pole Replacement Inspection."

Comments: Messrs. Sisk, Redcay, Stimmel and Sandberg.

The Telephone Society of Washington

722 Twelfth Street, N. W.
April 6

Speaker: Burdette Stryker, Plant Superintendent, Harrisburg.

Subject: Unannounced.

The P. C. T. Club

216 East State Street, Trenton, N. J.
April 13

Short addresses by installers: Messrs. Ferguson, Harris, Fletcher, Clay, Allen and Burroughs.

West Philadelphia Telephone Society

Lancaster Ave., below Fifty-second Street
April 18

Speaker: Max Freimark.

Subject: "Making Improvements."

Note: This paper will interest employees of all departments, and will include a wireless entertainment.

The P. C. T. Club

The members of The P. C. T. Club at Trenton enjoyed the reading of two papers on Thursday evening, March 9, 1911,—the first by R. J. Jackson, on "The Reporting of Time and Material;" the second by J. S. Brearley, on "The Use of Material."

The Cross Talk Club

The regular monthly meeting of The Cross Talk Club was held at Kugler's Restaurant, Philadelphia, Tuesday evening, March 14. Division Manager Clarkson, of Pittsburg, read the paper of the evening, "Telephone Development in Pittsburg."

The Telephone Society of Pittsburg

On Wednesday evening, March 15, P. L. Thompson, Manager of the Western Electric Company's Pittsburg branch, gave an illustrated lecture on "The Hawthorne Plant" before the members of the society.

West Chester Plant School

The West Chester Plant School held its semi-monthly meeting, March 16. There were 35 present to hear an interesting paper by A. B. Detwiler, on the "Comparison Between Actual and Theoretical Repairs."

Organization Changes

G. A. Carey, of the Right of Way Division, Pittsburg, has been transferred to the Legal Department, Philadelphia.

A. F. Spears, formerly Plant Chief at Dover, has been transferred to a similar position at Chester.

E. Rathmell, Jr., has been transferred from the position of Statistical Clerk to General Bookkeeper, 1230 Arch Street, Philadelphia.

M. R. Gilbert has been transferred from the Plant to the Commercial Department, Division Manager's office, Harrisburg.

H. E. Moot has been transferred from the position of Plant Chief at New Kensington, to the same position at Bradford.

V. H. Dake, formerly Plant Chief at Uniontown, has been appointed District Engineer with headquarters at Greensburg.

N. B. Fitzpatrick, formerly Plant Chief at Bradford, has been made District Engineer at Wheeling.

E. A. Mower has been transferred from the Traffic to the Commercial Department, East End, Pittsburg.

A Telephone Authority

From *The Spectator*, of London, England,
February 25, 1911

At the end of the present year the Postmaster-General will take over the whole of the vast business now in the hands of the National Telephone Company, and will then become possessed of an absolute monopoly of telephonic communication. In order to realize what this means, or may mean, it is necessary to trace, as Mr. Laws Webb has done in a very useful little book ("The Development of the Telephone in Europe." Published by The Electrical Press, Ltd., 37-38 Strand, London, W.C., 1s. net), the history of the purchase of the telegraphs by the Post Office. When that project was first mooted, Mr. Scudamore, one of the officials of the Post Office, was called upon to make an estimate of the probable cost. His first estimate, made in 1866, was that the whole of the plant of the two telegraph companies could be bought up for £2,500,000, and he calculated that the net revenue would amount to 8.8 per cent. on the capital. He subsequently made other estimates, rising rapidly till his fourth estimate, made in 1869, put the capital expenditure at £6,750,000, but he was careful, at the same time, to put up his estimates of revenue so as still to show a profit. Finally, Parliament voted £7,000,000 for the purchase, and, having done so, speedily discovered that that sum was insufficient. Among other incidents of the transaction, which would have been humorous if it had not been so serious for the nation, was the discovery, after the bargain had been completed with the telegraph companies, that they only had a leasehold interest in their wires running along the railway lines and that the railway companies must be compensated for their freehold interest. When the capital account was finally closed it reached nearly £11,000,000.

In spite of the obvious superficiality of these estimates, Mr. Scudamore and the other enthusiasts for the State purchase of the telegraphs succeeded in converting the Ministry of the day to their view of the financial success that the purchase would prove, and rosy pictures were painted in the House of Commons of a large and increasing net revenue from the telegraphs which would be sufficient in fifteen or twenty years to wipe off the whole of the capital cost, and leave the taxpayer a magnificent source of income to be used in relief of taxation. It is safe to say that unless the House of Commons had been deluded into the belief that the purchase would prove commercially profitable it would never have sanctioned such an adventure with the money of the State. Barely twelve months had elapsed before the disillusionment came. There was, it is true, a small net profit made on the first year's working, and a very much smaller profit the second year. After that the net revenue rapidly fell below the amount necessary to pay interest on capital, and, as a matter of fact, except for the first and second years, interest on capital never has been paid out of the profits of the concern. It has been met out of the Exchequer, or, in other words, has been a charge upon the taxpayer.

This, however, is only the beginning of the story. As years went on, the cost of working the telegraphs under State control rapidly increased out of all proportion to the revenue earned. Simultaneously pressure was put upon the department by the House of Commons to reduce the charges, and it was constantly urged that lower charges would mean higher profits. Possibly this might have been the case if the undertaking had been worked by an enterprising

commercial company, for before the purchase of the telegraphs by the State the companies principally concerned had progressively reduced their charges and improved their service for the sake of obtaining a more profitable business. But under State control lower charges meant, as a matter of fact, less profit, with the result that the gross revenue speedily fell far below the gross expenditure. This point is extremely important, because the apologists of State purchase have for years spread the inaccurate statement that the telegraphs have only failed to show a profit because of the high price paid for them. This is entirely untrue, for except for the first two or three years the Post Office has not been charged with interest on capital, and during the greater part of the administration of the telegraphs by the State the revenue has failed to meet working expenses. Nor is this all; for year by year Parliament has granted large sums to the Post Office to be used as capital for telegraph development, but has charged no interest upon any of these advances. When all these facts are taken into account—namely, the original capital which has never been repaid, the advances from Parliament upon which no interest is charged, and the annual deficiencies on working expenses—it will be found that the aggregate commercial loss to the country by the State purchase of the telegraphs is not less than £35,000,000. Nor can we console ourselves with the reflection that for this £35,000,000 the State has a valuable asset, for that asset, such as it is, involves every year on its working an additional loss of over £1,000,000.

From a commercial point of view the purchase has been an unmitigated failure. To reply, as the advocates of State action invariably do, that the public has received compensation in the shape of a more efficient and a cheaper service is plausible but unconvincing. For even if we make the large assumption that the service is better and cheaper than it would have been if it had remained in private hands, we are entitled to ask by what right the taxpayer is deprived of his money in order to subsidize persons who send telegraphic messages. The latter are a minority of the population; they are mostly well-to-do, and they are principally represented by two classes—purely commercial men, who look upon telegraphing as a business expenditure; and the racing fraternity, who certainly have no special claim to the charity of the taxpayer. Curiously enough, the one gleam of real enterprise displayed by the Post Office is in connection with race meetings, where the telegraphic arrangements are, we understand, generally excellent. But we dispute altogether the right of the advocates of State action to assume that the State control of the telegraphs has given the country a better and cheaper service than the companies would have done. During company control the rates were constantly being lowered and the service extended, and after the telegraphs passed into the hands of the Government, inventions were made (notably duplex and multiplex telegraphy) which ought to have immensely reduced the cost of working. Yet such is the fatal incapacity of governments to conduct a commercial undertaking that, as Mr. Laws Webb has conclusively shown, the working cost per thousand telegrams is actually more to-day than it was thirty years ago.

What is even more serious is the effect of the State monopoly of the telegraphs upon the development of the telephone. If the telegraphs had remained in private hands the telephone would have entered the field as a separate concern, and its competition would have forced the telegraph companies to give better terms to the

public. Probably, after a more or less prolonged struggle, the telephone would have established itself as a universal means of communication for short distances and the telegraph for long distances. But as the Postmaster-General was held by the Law Courts to have a complete monopoly of all electrical inter-communication, he was able for many years to block the development of the telephone. Finally, when compelled by public opinion to modify his attitude, he insisted that the telephone companies should pay him no less than 10 per cent. on their gross receipts. It will amuse our readers to learn that, up till a couple of years ago, this heavy royalty on the receipts of the National Telephone Company, which, in effect, is nothing more or less than blackmail, was actually credited by the Postmaster-General to the earnings of the telegraph department. Yet, in spite of paying this royalty, now amounting to nearly £300,000 a year, the National Telephone Company is able to pay its shareholders a dividend of 6 per cent., while the Post Office telephone system shows hardly any profit at all, even on the most favorable construction of the official figures.

In view of these facts the financial prospect of the acquisition of the business of the National Telephone Company by the Post Office is appalling, and we therefore heartily welcome Mr. Laws Webb's practical suggestion that the Government, instead of taking over the National Telephone Company's telephones, should create a new authority, somewhat on the lines of the Port of London authority, which would take over both the Post Office system and the Company's system. It should pay the Government a reasonable percentage on its takings, and arrangements should be made for reduction in its charges to the public going hand in hand with any increase in dividends. Subject to these conditions, it should be allowed—nay, encouraged—to work for a profit like any other commercial venture. Working for a profit is the best incentive to efficient, and so to beneficial, trading. This authority would of course have to be absolutely independent both of the Treasury and of the House of Commons, and free to borrow money upon its own credit. For if the telephone system of this country is to be developed to anything like the extent to which it has been developed in the United States under private enterprise, large sums of capital—probably £5,000,000 or £6,000,000 at least—must be expended every year for many years to come; while, if the system is to be worked so as to produce a profit instead of a loss, the controllers of it must not be subject to political influences, which have made the telegraph service so complete a failure from the commercial point of view. We therefore commend this proposal very strongly to the present Government, in spite of their predilection for State enterprise. For in the long run the hard facts of finance are unanswerable. The country is already committed to vast schemes of expenditure, and there is a growing feeling of irritation at the burden of taxation.

If the Post Office takes over the telephones itself the ghastly failure of the telegraphs will certainly be repeated; if a separate telephone authority is created, there is a reasonable prospect of a satisfactory profit for the State.

The *New York Sun* of March 6 commented on the fact that telephones in churches are now being utilized for a very worthy cause. Pew holders, it is said, are gradually learning to call up their church when unable to attend. In this way an adequate list of available seating space is obtained and provisions for visitors can more intelligently be made.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

The following tables show the number of private branch exchanges and rural circuits, with the respective number of stations in each case, obtained in the Harrisburg Division during the month of February:

P. B. X. Trunks and Stations			
District	Name	Circuits	Stations
Allentown...	Farr Brothers.....	2	21
Harrisburg.....			
	Harrisburg Auto Co.	2	5
	Aud. Gen'l's Dep't, Cap. Bldg.	3	5
	Frick M'f'g Co....	2	41
		7	51
	Total	9	72

New Rural Circuits and Stations			
District	Name	Circuits	Stations
Allentown...	Greenwald	1	4
Altoona.....	Juniata Union ...	1	13
Harrisburg.....			
	Carlisle and State Road	1	7
	Filey's Church ...	1	6
	Franklintown ...	1	6
	Upton No. 2	1	6
	Weber	1	7
	Upper Pine Road.	1	6
		6	38
Wilkes-			
	Barre.....Lime Ridge	1	6
York.....	Lanc. Elec. Co....	1	5
	Total	10	66

Allentown District. An Allentown salesman suggested to a local music dealer that he advertise for telephone sales. Being convinced there was no reason why piano players, phonograph records, sheet music and pianos could not be demonstrated and sold by telephone as well as in the store, the dealer changed his service from a 6-party to a direct line with an extension set. He desired to bring this innovation before the public in the next morning's issue of a local paper, and inquired as to the length of time necessary to install his new service. The salesman took the matter up with the Plant department, and as a result the new order was O.K'd before 5.00 P. M. of the same day. In the meantime the ad. writer prepared copy for a 30-inch space, using Bell cuts generously and inviting the public to "Purchase by Telephone."

The congregation of one of the Easton churches increased its pastor's salary and advised him to have a telephone installed. This notice appeared in the locals of an Easton paper, and

a salesman seeing it, was enabled to obtain an application for service the same evening.

Reading District. Recently a farmer in South Annville, Pa., had telephone service installed on his farm with the provision that his wife and daughter pay the annual rental and that he could use the station by paying a 10-cent toll to his wife and daughter for each message. During the first week he talked 18 times at a cost of \$1.80, and then concluded that he would undertake the payment of the rental himself and have unlimited talking privileges.

An elderly woman in Shamokin, upon using a Bell public telephone for the first time, became somewhat nervous and excited. The following conversation took place between her and the operator handling the call:

Operator: "I have your party, drop fifteen cents, please."

Woman: "I haven't got fifteen cents, but I'll drop twenty and you can hand me back a nickel."

Scranton District. One of our Scranton subscribers, while on a Lackawanna train on Sunday, March 5, picked up a pocketbook containing \$1,000 in cash and negotiable papers. The pocketbook contained the name of an Elmira person. On the finder's arrival at home he immediately communicated with the Elmira man over the Bell lines and the pocketbook was expressed to the delighted owner in a very short time.

Within the past few months a number of persons have called at the Carbondale commercial office and asked to be allowed to look at the latest issue of our subscribers' directory. After obtaining the desired information they would either place calls with the clerk in charge of the public telephone or remark that they merely wanted to find the address of a certain resident or business house in Carbondale or some nearby town. During the past week a salesman called and asked for the same privilege. Inquiry developed the rather interesting news that many people were using the Company's directories in preference to local city lists. Several who were interviewed stated that they did so habitually because the Bell directories were issued more frequently, and were usually much more reliable.

Wilkes-Barre District. At the recent exposition held by representative business and professional men of Hazleton Governor John K. Tener was unable to attend in person, but delivered the opening address of the celebration by

using the Company toll service from Harrisburg to the assembled guests in Hazleton. Local newspaper articles, in speaking of this much-appreciated innovation, spoke in complimentary terms of the pains to which the Company's representatives had gone in order to provide this feature.

Baltimore Division

The J. H. Brendlinger Company, a prominent Baltimore department store firm, recently placed a trial order for 300 toll coupon books, and was so pleased with the resulting sales that an order for 800 additional books was received a few days later.

Another firm, The Baltimore Electrical Supply Company, has made the broad announcement that customers within a radius of fifty miles are invited to call by telephone at any time and on any subject relating to the company's business. The advertisements explain that this method has proved more satisfactory than an effort to have salesmen make personal calls.



One of the few colored operators employed by connecting companies is Mrs. Edith Williams, who for some time has had charge of the Severna Park Telephone and Telegraph Company's exchange at Boone, on the Severn river. She is 53 years of age. The accompanying illustration shows Mrs. Williams at the door of the building in which the switchboard is located. The central office is soon

to be moved into new quarters. What better illustrates the universality of the Bell telephone service and operation?

On the occasion of the recent costly fire at St. Charles' College, near Baltimore, the Company's local trouble man, on arriving at the scene of the fire, found three sections of our wire down and all equipment destroyed. On looking through the ruins he found an old "Sumter" telephone, formerly used by the Citizens' Telephone Company. This he overhauled, tied to a pole and had a through connection in about 15 minutes after his arrival.

A score or more of letters commending the manner in which the Company's rural lines are looked after and the quality of service have been received at Baltimore. These letters vary greatly in degree of sentiment and the manner in which appreciation is expressed, but all are commendatory and indicative of the satisfied feeling existing among rural subscribers in this vicinity.

A suburban subscriber in the Frederick district, while paying his telephone bill, remarked, "I want my telephone taken out, as my business does not justify me having it." The agent talked with him a short while and finally said, "Reconsider the matter, and I will call and see you in a few days." The agent called, and after another talk the subscriber decided to keep the telephone and have his electric lights discontinued.

A list of 99 subscribers in Frederick County booked for temporary disconnection was given to the Plant department March 10 and were disconnected the same day. All but 14 paid within 2 days when they realized they could not get service. Thirty-one of these subscribers were in Frederick City. Sixteen of them paid before three o'clock March 10, and 6 more the next day, making a total of 22 out of the 31 who paid within 1 day. Since then the other 9 have been reconnected with the exception of one.

A plan "A" rural line with 9 stations has been completed for the Avondale Telephone Company. One for the Pleasant Valley Telephone Company, with 8 stations, will soon be completed.

Wuchter Scores Again!

For progressive methods in musical instrument selling this store is head and shoulders above every other establishment in the Lehigh Valley.

Hear Your Favorite Records by Telephone in Your Own Home!

We have completed arrangement whereby you can call us on the 'phone and we will play you any selection you pick from our Catalog.

Bell 1143

Lehigh 1607

Bell 1143

Lehigh 1607

Every Record in the Columbia Phonograph Co.'s Catalog, we carry in stock.

Our Private Bell Phone is 1143

Write for our catalog, then 'phone the selections you are desirous of hearing. We will connect the machine with our private Bell wire and you enjoy the music at home. What you want you can order.

PROMPT DELIVERY

WUCHTER'S 41 South Seventh St. Store Open Saturday Evening.

Washington Division

R. G. HUNT, Division Correspondent

The Washington Railway and Electric Company has erected several switching towers on the Union Station Plaza and on congested corners in the immediate vicinity. In each of these towers are installed two telephones, one in the switchman's box, the other in the pedestal, connected as branch exchange stations on the Washington Railway and Electric Company's switchboard. These telephones enable the traction company's officials to retain complete control of practically any situation. The station located in the tower base allows communication between car operators and dispatchers, and the station in the switchman's box makes possible the quick handling of traffic difficulties in the Union Station district. The trackage controlled by this system is common to nearly all the car lines in the city, and numerous impending delays incident to overcrowding have been averted by the promptness with which operators have been enabled to get in touch with their respective superiors.

These stations were installed in the nature of an experiment, but

with a telephone in front of him. The first episode of the sketch was an incoming call which was received at the main station by a maid. She said, "Yes, the doctor is in; just a moment," and proceeded to ring the extension. The man seated at the desk then answered his telephone and the conversation started. The entire action of the playlet hinged upon the double-station service.

At a recent basket-ball game between Columbia and Yale a New York paper states that a collision occurred between two of the players which knocked out three of the teeth of a Co-



lumbia guard. He was able to find only two of them, but with these sought a dentist immediately after the game. The dental expert promised to "make the teeth grow back again," and suggested that a further search be made for the missing one. The Columbia athlete acted upon the suggestion, and by dint of much telephoning and telegraphing between New Haven and New York he finally located it, and now is in full possession of all his teeth.

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

subsequent use has proved them to be almost indispensable adjuncts to the handling of street railway traffic. Mr. Moffett, superintendent of the Washington Railway and Electric Company, has expressed himself as highly satisfied with the results.

The following note was received a few days ago from a prominent paper firm in Washington:

We take pleasure in renewing our space advertisement in the Telephone Directory. In doing so we wish to congratulate you on the real value that we believe you give your advertisers. We were somewhat reluctant to take this space but our experience has shown us that it pays.

In a vaudeville sketch recently presented at one of the Washington theatres an extension station was used with good effect. The main station was placed on a desk in the center of the stage, while off to the left in an adjoining room could be seen a doctor sitting at his desk

Pittsburg District. A. C. Terry, well known to all of the Central District employees, is coming back to Pittsburg. On April 1 he will assume the position of Commercial Superintendent of the Third District of The Western Union Telegraph Company, with headquarters in this city. Mr. Terry was formerly Commercial Superintendent of the Pittsburg District of the A. T. & T. Co., and was transferred to the Philadelphia office of that company January 1, 1911.

A private branch exchange with 60 stations was installed for the use of exhibitors and others at the Auto and Aero Show recently held in the Exposition Buildings at "The Point."

F. K. Singer, Plant School Instructor,

recently gave an illustrated lecture on telephone conditions in Pittsburg. Mr. Singer spoke to the members of the physics classes in the Pittsburg High School.

Eight new booths and the latest style of switchboard have been placed in the Pittsburg Union Station. The booths are of oak, with beveled glass doors and a great improvement over the other types that are now displaced.

Butler District. The Butler Plant Chief recently made it possible for a new subscriber in that city to receive telephone service within thirty minutes after his application had been signed. The new Bell user, to show his appreciation, promptly signed for two extension stations.

Two sections have been added to the Butler switchboard. Within two years the number of Bell telephones in use in Butler has increased 75 per cent.

A prominent Bradford physician sent the following reply to the slips inclosed in the February bills: "I am agreeably sorry that I can't complain. I really feel that the business is being handled much better than I could do it myself."

Until recently the opposition company at Butler charged its Fenelon, Pa., subscribers five cents to talk to Butler. A Bell salesman learned of this, entered the territory and explained to these people that his company gave free service to Butler. Within a week he "signed" 25 new applications, and now the opposition company is giving free service to Butler.

Stewart

Greensburg District. Five miles of aerial cable have been strung in Johnstown since December 1, and more than 500 poles set. Car loads of poles are coming in each week, and in a short time the new facilities will furnish service to all parts of the city. Three sections of new switchboard are being installed in the Johnstown central office. The operating room has been enlarged. The present switchboard has 16 positions.

Two additional farmer lines are being strung to Echo, a small town midway between Johnstown and South Fork, in order to serve the increased number of rural subscribers in that section.

The offices of the Greensburg Plant Supervisor have been moved to the Coulter Building, Main Street. Our own building at this place no longer provides sufficient space for all departments.

The office of District Plant Engineer has been created at Greensburg. W. H. Dake, formerly Plant Chief at Uniontown, Pa., has been appointed and assumed his duties March 1.

The Hempfield Farmers' Telephone Company, of Greensburg, has just completed two additional circuits, connected with our lines at Greensburg. The Hempfield Company has 31 subscribers.

The Brush Valley and Mechanicsburg Telephone Company, of Indiana County, is building lines to serve at least 25 rural patrons.

Hugus

New Castle District. New Castle "went dry" March 15, and the hour following the license application decision was the busiest ever known in that city's central office. During that time more than 3000 calls were completed. Apparently every telephone user in the city had a call to make as soon as the decisions were made.

Quarters have been leased on the second floor of the Traction Building in Corry, Pa., and The Central District Company offices will soon be moved to that location.

Meyer

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

APRIL 15, 1911

NO. 8

WINFIELD S. PEIRSOL

Secretary and Assistant Treasurer

WINFIELD S. PEIRSOL, our Secretary and Assistant Treasurer, is a Philadelphian not only by birth, but by education and business training.

A brief mention of Mr. Peirsol's family history is interesting. Joseph North Peirsol, his father, during the Civil War served at Gettysburg as Major in the old "Washington Grays," which later became the First Regiment of Philadelphia. In private life J. N. Peirsol was known as the best detector of State bank counterfeit currency in Philadelphia. Both the father and grandfather of W. S. Peirsol served the city of Philadelphia in public capacities—as City Treasurer and as Register of Wills respectively. His great grandfather was Lieutenant Caleb North, one of the military aids of Washington and one of the charter members of the First City Troop. Mr. Peirsol is one of six sons, five of whom have been closely identified with financial and other institutions in positions of trust.

Mr. Peirsol began his business career as clerk in the dry goods and notion house of Young, Smyth, Field & Company, and was later advanced to Assistant Buyer of Linens. He left that Company to accept a position as Secretary and Treasurer of a large coal and iron company in the South. After having spent two years in Florence, Ala., in this capacity, Mr. Peirsol returned to Philadelphia and became connected with The Industrial Trust, Title and Savings Company of this city as Assistant Secretary and Treasurer, a position which he held until 1898.

Mr. Peirsol entered the Bell system in March, 1898, as Secretary and Auditor of The Delaware and Atlantic Telegraph and Telephone Company and in the following year became Secretary and Treasurer.

In 1900 he was elected Assistant Treasurer and in 1901 Treasurer of The Bell Telephone Company of Philadelphia. The Secretaryship of the latter Company was added during that year.

When The Diamond State Telephone Company was purchased in 1905 Mr. Peirsol was elected Secretary and Treasurer.

On January 1, 1908, when the Chesapeake and Potomac was acquired and the Pennsylvania and the Philadelphia Bell Companies were consolidated, Mr. Peirsol became Secretary and Treasurer of The Bell Telephone Company of Pennsylvania and Controlled Companies.

In 1910 when the territory was extended to include that of The Central District and Print-

ART AND SCIENCE IN PLANT WORK*

B. Stryker, Plant Superintendent, Harrisburg

MR. PRESIDENT and Gentlemen: About seven years ago, as many of you will remember, I went from The Chesapeake & Potomac Company to The Bell Telephone Company of Philadelphia, in their Delaware & Atlantic Division, and later to The Bell Telephone Company of Pennsylvania, and during these seven years I was stationed at Trenton, N. J., for a short time, then at Philadelphia, Reading and now at Harrisburg, and, while I have had the pleasure of seeing many of my goods Chesapeake & Potomac friends from time to time, this is really the first opportunity that I have had of meeting so many of them assembled together at one time, and it is, indeed, a great pleasure. It has been said, "Happy is he who keeps one faithful friend." You can therefore imagine my happiness in greeting the host of friends here assembled.

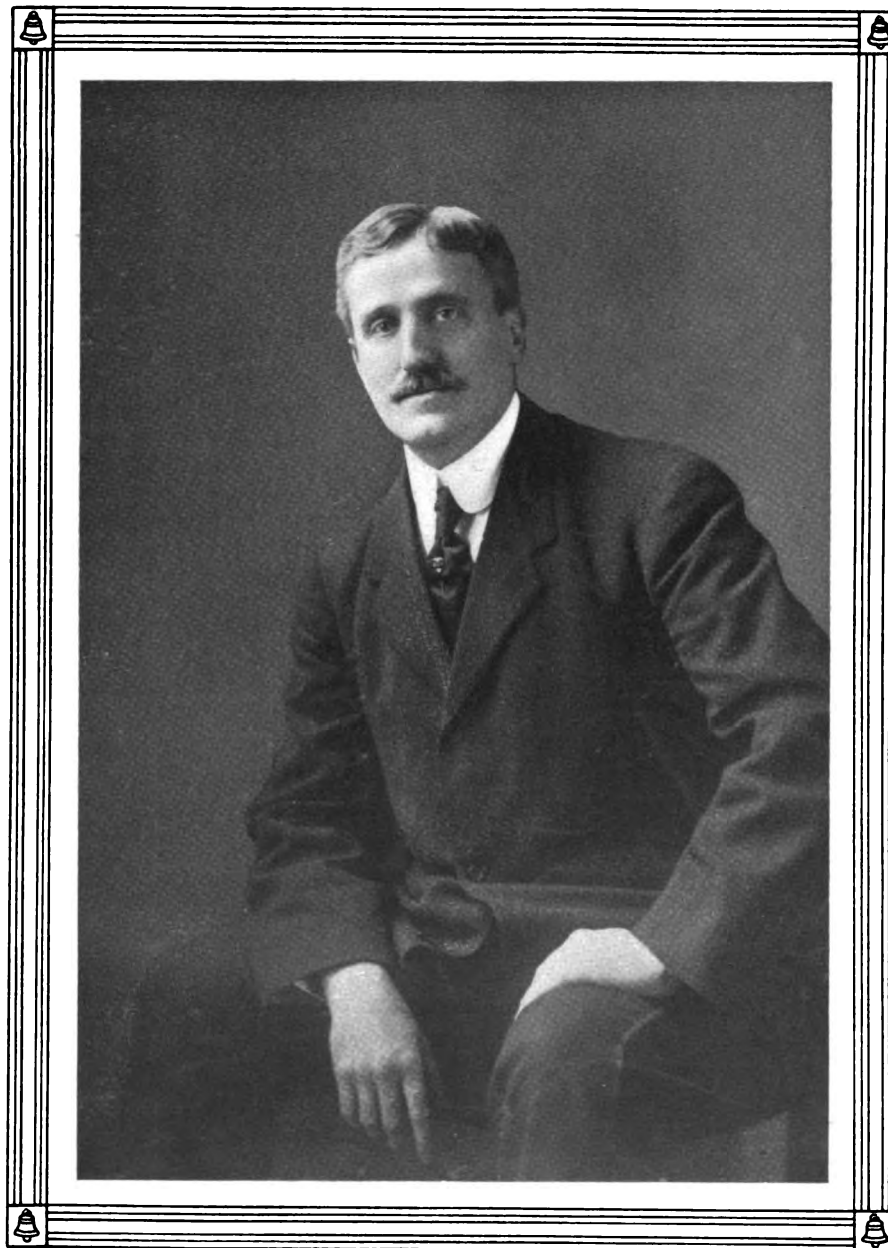
It is a good thing to start young, or as early as one can, after he has decided on his life-work, and I am ever mindful of the fact that many of the men here started to do things when they were young, and the business of doing things was not so organized as you now have it.

A right start is of immense value in any work; especially, right in the beginning, to have the proper perspective or viewpoint so that we may see clearly and correctly—viewing the whole picture of our work in its true light; enabling us to be able to see things exactly as they are, not as we hope they will be or expect they should be, but as the exact facts show the things to be.

From all that I have heard and know about the exact facts in the case of the whole Baltimore organization, in all of its respective departments, is that efficiency is a habit with you all, and that making good is a daily achievement that has become a standard here, and on this record you are to be congratulated.

Your President, in extending the Society's

(Continued on page 8)



ing Telegraph Company, Mr. Peirsol was also elected Secretary and Treasurer of that Company.

These offices were held continuously by Mr. Peirsol until February, 1911, when Mr. Ford Huntington succeeded him as Treasurer and he became Secretary and Assistant Treasurer of The Bell Telephone Company of Pennsylvania and Associated Companies.

(Continued on page 2, column 3)

*A paper read before The Telephone Societies of Baltimore and Washington, March 1 and April 6, respectively.

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



U. N. BETHELL, President
F. L. SPALDING, Second Vice-President and General Manager
W. S. PEIRSOL, Secretary
WALTER BROWN, General Auditor
L. H. KINNARD, Commercial Manager
J. C. NOWELL, Plant Manager

The Chesapeake & Potomac Telephone Company
The Diamond State Telephone Company
The Maryland Telephone Company

Managing Editor, E. H. HAVENS, 1230 Arch Street, Philadelphia, to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE.
To employees of OTHER BELL COMPANIES, \$1.50 per annum, payable in advance

Vol. VII APRIL 15, 1911 No. 8

An Appeal to YOU

IT isn't often that the Company appeals to its employees on the ground of personal favor; therefore when such an appeal is made it would seem not an *obligation* but a *privilege* to respond.

The Company is only an association of men and women working toward a common end. If one of these individuals wanted something and the desire were sufficiently marked, he or she would strive unreservedly for it. Further, if the person were of the strong-minded, red-blooded type that finishes work begun, one may easily guess the result.

Through its paper, the Company wishes to establish the precedent, if you wish so to term it, of requesting its employees themselves to practice, and to urge others to practice, the *habit of purchasing by telephone*. In our advertising campaigns, as well as in other selling efforts, we have been working toward this end for some years—but the arguments have been directed toward the *public* only.

The so-called Pennsylvania group of Bell telephone companies now employ nearly *fourteen thousand* men and women of the calibre of which any company may feel proud. In such a force, each can directly influence two persons and through them or otherwise indirectly influence, perhaps, six others.

14,000 loyal employees
28,000 influenced directly
84,000 influenced indirectly

126,000 persons purchasing by Bell telephone

The figures are conservative; the totals startling.

Consider for a moment what the result would be in our business world if 112,000 persons were being *continually* reminded by 14,000 others of the practicability and desirability of doing all ordinary purchasing by telephone. There isn't an employee without some occasional store wants the greater part of which may be easily and conveniently satisfied via the *Bell*. Moreover, if we, as employees, believe in the efficiency of buying by telephone, there is no more convincing way of advertising the fact than by using the Bell for that purpose. The public is more easily led by *example* than by *precept*.

Think of the thousand and one things that we buy during the year—hats, shoes, gloves, neckwear and other articles of clothing—excepting, perhaps, suits and dresses—books, cigars, candy, drugs, stationery, groceries, fuel, tickets for places of amusement, notions, brushes of all kinds and countless other wants. Practically all are standard and may be selected as well by telephone as by personal visits. Their designations (brand and style) and quantity may be given by telephone without the slightest inconvenience or uncertainty.

The progressive stores everywhere have come to appreciate the importance of incoming telephone business and have provided for the careful handling of these orders. Some of them have arranged to record these designations in card file form in order to be able to provide seasonable wants with the least liability of error or delay. They are anxious to deliver and even to send on approval sufficient varieties from which selections may be made. The fact that one large store can show a *gain of eighty per cent.* in its number of *incoming* telephone calls for a single year is in itself sufficient evidence to prove that this method of purchasing is entirely satisfactory. This gain is due to newspaper and other advertising of the store service and to treating the telephone customers as courteously and promptly as if they had made personal trips to that store. If one store reaps an unusual amount of profit by a generous opening of its telephone doors, by that very act it blazes the way for others to share the benefits.

Inasmuch as our own 14,000 employees are scattered over 76,000 square miles of territory it is probable that only a very *unimportant* part of *that* store's telephone sales have been made *to us*, but we have all, perhaps, done a certain amount of purchasing by telephone.

Employees of our Company, which is spending so much money in newspaper and other advertising to bring about this desired result of urging general purchasing by telephone, *should themselves* be the most enthusiastic followers of the plan.

Scarcely a day passes when the average telephone employee does not make at least one purchase of some kind, but even if he made one only every alternate day and used the telephone in doing so, we would have in our territory *seven thousand daily purchases* made by Bell telephone. What a selling argument for our salesmen! What an opportunity for newspaper publicity! What an indomitable force to aid in establishing an absolute universal service in one telephone system!

After such a habit shall have been inculcated not only in our own minds, but also in the minds of those whom we are to influence, there will be such an endless chain of business via the Bell that it will astonish us all. This habit will grow faster than the Bell system's stations, and inasmuch as traffic brings stations, no one can anticipate the actual results.

We Bell telephone employees in our territory buy far over *a million dollars'* worth of items referred to in a year. Why shouldn't they be bought via the Bell?

Let's start the ball rolling with our ordinary daily purchases *at once*.

Remember that every purchase which we make by Bell telephone is *a business boost for the Company that employs us* and a welcome message for the recipient. THE TELEPHONE NEWS will gladly publish results of this effort.

Winfield S. Peirsol

(Continued from page 1)

Mr. Peirsol is a member of the Board of Directors of the following Companies:

The Delaware and Atlantic Telegraph and Telephone Company.
The Diamond State Telephone Company of Virginia.
The New York and Pennsylvania Telephone and Telegraph Company.
The Delaware County Subway Company.
The Union Electric Conduit Company.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. In the March 29 issue of the Allentown *Morning Call* a full half page is devoted to a telephone advertisement calling attention to the toll facilities provided by Farr Brothers and Company, of this city, for the convenience of customers living in 75 or more neighboring towns and cities. The same firm is distributing an attractive postcard bearing, on one side, a reproduction of its modern building, and on the reverse a tactful invitation to shop by telephone at its store.

The Lehigh Valley Railroad, according to the Towanda *Daily Review*, has fallen into line in the effort to do away with the meaningless "hello" that for years has opened telephone conversations. The instructions apply particularly to employees calling train dispatchers. They are ordered to cut into his circuit with the one word "dispatcher." If that official is free to talk he answers "right," and if otherwise engaged simply says "cut out." In no case is the word "hello" to be used.

H. L. Hamersly, one of the Company's directory advertising space salesmen, recently obtained an extensive order from the Mack Brothers Motor Car Company, of Allentown. By the terms of the contract this firm will use a half page advertisement in each of the following directories for the period of one year:

Baltimore and Baltimore "Elsewhere."
Washington.
Harrisburg division directories.
D. & A. directories.
Philadelphia local directories.

In addition, a full page space in the Philadelphia general book; in all, space is engaged in 25 directories.

The following statement indicates the results being obtained from the plan of furnishing large concerns in this district with toll coupon books. These subscribers have all closed contracts for better grades of service because of increased sales derived from this feature.

Subscribers.	Former Service.	Re-signed to.
2	Party line	Direct
2	"	Direct and ex. set
1	Direct	Direct and ex. set
1	2 direct	No. 1 P. B. X. (2 trunks, 20 stations)
1	No. 1 P. B. X. (2 trunks 7 stations)	No. 1 P. B. X. (3 trunks, 20 stations)

The value of a request for moving a telephone was recently demonstrated in Allentown. An official of a local corporation requested that his residence telephone be moved. A salesman induced him to change from a party to a direct line, to change the service of two other stations which were paid for by his company to direct lines, and another station from a multi-party to a 2-party line.

Reading District. A collector of delinquent rental in Shamokin was recently told, after satisfactorily adjusting a claim against a subscriber, that never before had the subscriber dealt with a firm that tried so hard to be fair to its patrons.

While canvassing a block in Lebanon one of the Company's salesmen at that place obtained 2 applications for service in less than 2 hours. Similarly successful results are coming from the block system work now being done in this city.

A significant letter is that received a few days ago from the manager of the Leesport Rural Telephone Company, of this district. The text follows:

I desire to thank you for the fair and courteous treatment given our Company by your employees

generally. We started originally with 15 subscribers 15 months ago and now have 95 subscribers and expect to have this amount doubled within a year. People who were skeptical when we first started and would not invest are now desirous of doing so, but we have no stock for sale. No one need hesitate to invest in good rural telephone securities, and I recommend The Bell Telephone Company and its employees as being fair and courteous.

We use all Western Electric telephones material and switchboards. They give excellent satisfaction.

Scranton District. A subscriber who resides in Susquehanna, Pa., recently advertised his property for sale. The following day a Binghamton man called him by telephone, and purchased the property without having seen it. The Binghamton bank notified the Susquehanna subscriber that the amount to cover the sale of the property had been deposited to his credit.

A prospective subscriber who had been receiving the company's advertising matter called at the Scranton office Friday, March 24, to advise us that we were wasting money in sending him advertising, as he would not subscribe for service. A representative succeeded in pointing out to him the many advantages he would receive by becoming a subscriber, and before he left the office he signed an application for service.

Wilkes-Barre District. The "Black Hand" Society is supposed to have a very large membership in Pittston, and recently has been very active. An Italian who had been called to New York as a witness against members of the "Black Hand," or Mafia Society, recently returned to Pittston. He was followed by members of the society, who shot him down as he was entering his home. The prompt use of the Bell telephone in notifying police headquarters resulted in the arrest of twelve desperate characters, supposed to be members of this society.

A very important telephone message was received recently at Troop "B," State Police Barracks, Wyoming, Pa., requesting that troops be sent to a certain coal breaker at once. The person calling hung up the receiver before the clerk could get the name of the coal company. Captain Robinson called the Chief Operator and asked her to have the call traced, if possible, and call him. A number of coal companies were communicated with, and the person who passed the call was located. After the conversation was completed the captain again called the Chief Operator and thanked her for her assistance.

At the White Haven, Pa., exchange a lady recently passed a long distance call, and when the operator had the person ready, she discovered she could not enter the booth on account of the size of her hat. Finally the hat was removed and the conversation held.

York District. The following rural lines have been completed in the vicinity of Lancaster:

March 15—Spring Valley Rural Line, Millersville exchange, 9 subscribers.

March 17—Elizabethtown Valley Rural Line, Elizabethtown exchange, 7 subscribers.

About 3:45 A. M. Sunday, March 19, fire broke out in the bake shop of C. F. Meyers, Millersville, Pa. Mr. Myers called the Company's night operator and asked for assistance in getting help. The operator called a number of subscribers and explained to them the nature of the trouble. The response was very prompt. A bucket brigade was formed and while it was unable to save the bakery, the residence and a number of other frame buildings were saved. Mr. Myers and a number of other people are very thankful for the interest taken in his trouble.

Baltimore Division

Some of the more prominent commission merchants in the city of Baltimore solicit orders throughout the state by telephone. The following data explain rather forcefully one of the reasons for liking this plan.

At 7:49 A. M., March 29, J. J. Underhill, a commission merchant, placed eight calls for "particular persons." It took two minutes to record them. Connections were established and conversation started in this order:

7:51 Hancock, Md.	Talked 4 mins.
7:55 Harpers Ferry, W. Va.	" 2 "
8:01 Berkeley Springs, W. Va.	" 3 "
8:05 Harpers Ferry, W. Va.	" 2 "
8:09 Brunswick, Md.	" 4 "
8:14 Berkeley Springs, W. Va.	" 1 "
8:15 Brunswick, Md.	" 3 "
8:19 Hancock, Md.	Out.

Time from signal answered by recording operator to completion of all 8 calls...30 mins.
Actual time of conversation...19 "

At 8:29 A. M. the same subscriber put in eight more calls. They were completed in following order:

8:38 Hancock, Md.	Talked 4 mins.
8:42 Brunswick, Md.	" 3 "
8:46 Shepards town, W. Va.	" 2 "
8:50 Brunswick, Md.	" 1 "
8:53 Berkeley Springs, W. Va.	" 3 "
8:56 Brunswick, Md.	" 3 "
9:03 Harpers Ferry, W. Va.	" 2 "
9:06 Lovettsville, Va.	" 2 "

Time from answer of recorder to completion of all calls...37 mins.
Actual time of conversation...20 "

The Baltimore *News*, a newspaper that has been carrying on a vigorous "advertise by telephone" campaign, reproduced a series of sketches in its March 25 issue which portray in a strikingly graphic manner the results obtainable from a *News* "help wanted" advertisement.

The spirit of fellowship existing among the Company's employees was again demonstrated at a recent entertainment given by the young women of the Mt. Vernon exchange, for the benefit of one of their number who was seriously ill. An attractive program was rendered and a considerable amount of money was raised, both from the sale of tickets and from the fifty odd advertisements contained in the printed program.

The Frederick representative of the Company several weeks ago received the following letter from a prospective subscriber:

Inclose you will find the contract. witch i hope wil be al right and please get this phone in to me as soon as possiable, and please give me a god ring as i do not want it if you give me a bunch of rings and i wish you to get this phone in to me as soon as possiable as i need it and i wish you to tell me if i am to charge for using my phone. and who that money goes to after i have collected off the user. so please explain this to me. and i want a phone that i can set it on my desk. and i will be at home this week and if you can get out to put it in for me Saturday while i am home i will be very glad. as i am going to go away on Monday and i would like to be here when it is put in. so try and get out on Saturday Feb. 25. if possiable. hoping you will do this for me i beg to remain. as ever.

No "Hello" in Navy.

Secretary of the Navy Meyer has prohibited the word "Hello" on naval telephones. The Secretary believes that much time is lost and that the telephone wires are congested unnecessarily by using this word every time a telephone connection is made. He has directed that the person receiving the call shall answer with the name of the office, or if there are several persons in the office the person receiving the call shall give his or her name and the name of the office.

Pittsburg Division**L. W. GRISWOLD, Division Correspondent**

Pittsburg District. Some time ago a special effort was made by the East End Local Manager, E. F. Patterson, and his 17 salesmen to obtain a net increase of 400 stations during the month of March. The efforts to reach this total were watched with interest by every Commercial employee in Pittsburg. It was expected that the East End men would do well, but the net increase of 458, which was actually obtained, went beyond all expectations. S. B. Finch, who lead in the contest, obtained 107 new stations, 48 of them at the automobile show.

The operators in charge of the 2-position switchboard that served the automobile show in Duquesne Garden from March 25 to April 8 were provided with an alphabetical list of all the persons in any way connected with the various exhibits installed in the big building. This list contained about 300 names, and enabled the operators at once to call the desired person without resorting to the Duquesne Garden information bureau. "We certainly appreciate the Telephone Company's thoughtfulness in taking care of our calls with so much dispatch," said one of the show officials the other day. A salesman was in constant attendance at the telephone booth, and over 14,000 advertising booklets were distributed to show visitors. The names of numerous prospects for the sale of telephone service were obtained, and several of the pleasure seekers were persuaded to sign applications for telephone service.



Shade trees in abundance are a constant source of trouble for the telephone men. Some years ago in Sewickley, Pa., several linemen ran against a particularly obstinate piece of twist. In spite of all their pulling and hauling the little wire refused to give. A careful examination disclosed the fact that the wire had become firmly embedded in a limb on a Carolina poplar. It can be seen by the accompanying photograph that the wire was covered by wood on all sides. No trouble was experienced on this line, and the insulation was in a remarkable state of preservation.

A portion of the "Brady" exchange on the North Side has been cut over to the former "Bellevue" exchange, and the combination has been re-christened "Neville."

Just the other day a Pittsburg fire insurance agency lost a \$5,000 policy on account of having inadequate telephone facilities. This is how it happened:

A school board had been in session all day, and was reaching the end of its business. During the last hour of the session a fire insurance salesman was heard, and policies aggregating \$20,000 were signed. The salesman thanked the board and hurried away. He had been away but a few minutes when one of the board members said that he thought it a mistake that

more insurance was not taken. The other members agreed with him.

"Well, let's telephone to the agency and arrange for \$5,000 more," said the school principal.

This met with approval, and the principal started to carry out his plan.

"Line is in use," was the operator's answer. Several attempts were made to reach the agency, but the same report was always received.

"Well, I am leaving for Philadelphia at 6 o'clock," said one of the school board. "Call up the agency (naming another Company) and give it the extra policy." It was late, and the suggested course was taken.

The following day the school principal called up the North Side commercial office. "Go to the agency and tell them I couldn't get them on the telephone yesterday. They lost a \$5,000 policy, and this may help you to make a sale."

A salesman went to the agency, explained the situation, and obtained an application for an additional trunk line.

Butler District. A private branch exchange, consisting of a switchboard, 2 trunks and 4 stations, has been installed for the Eclipse Truck Company plant at Franklin, Pa.

In response to invitations announcing the opening of the New Kensington, Pa., exchange, located in the Sibley & McAllister building at that place, about 4000 people took advantage of the opportunity and inspected the new apparatus. The rooms were decorated with ferns and cut flowers and presented a fine appearance.

A careful distribution of the folder "When the Elements Are Against You" netted the New Kensington, Pa., Local Manager 15 new applications during the first two weeks in April.

STEWART

Greensburg District. A traffic agreement has been signed by the Jefferson and Clearfield Coal and Iron Company. It will operate about 15 toll stations, and will be connected with our exchange at Indiana, Pa.

The first Plan "A" agreement to be closed in the Greensburg district was signed by the Maple Grove Rural Telephone Company on March 17, 1911. It will be served from our Greensburg exchange, and will begin business with at least 10 subscribers.

Private branch exchange service has been installed for the Westmoreland Grocery Company, a wholesale concern in Greensburg. The equipment consists of 2 trunks and 11 stations.

At Greensburg the following additions have recently been made to our plant to take care of the increased business. Fifty poles have been set, about 2,200 feet of 400-pair underground cable has been placed, and 4 miles of 30-pair aerial cable has been strung.

A cordless switchboard has been installed for L. Keck and Company, of Greensburg. The equipment consists of 6 stations and 2 trunk lines.

The Plant department in Portage has started to set about 100 poles and to string about a mile of aerial cable. During the past year the Portage exchange has doubled its number of subscribers.

The construction work incident to establishing the Beaverdale exchange was started April 3, and it is expected that the office will be open by April 20. Sixty-four subscribers were added in this vicinity during the month of January.

Fifty-one new contracts have been taken in Conemaugh (a suburb of Johnstown, served from our Johnstown exchange) during the past

10 days. It is expected that at least 40 more will be obtained in this town. This will give the Company a total of about 125 subscribers, an increase of over 80.

HUGUS.

New Castle District. A crane mounted on an Erie wrecking car became loose while passing through Girard, O., and damaged our Company's property to the extent of \$2,500. Five messenger wires and cables, a 2-story building and 14 poles were demolished. Despite hard work on the part of the repairmen, it was 3 days before the damage could be repaired.

As a result of advertising, the Warren, O., Local Manager has been asked to go over the plans of The Sterling Electric Company's new building and make provisions for a large private branch exchange which will be installed in the building.

HARPER.

Uniontown District. A man who had not seen his only sister for 20 years recently appeared at the Washington, Pa., office. He explained that he had just learned that his long-lost relative was visiting her son in McKeesport, Pa. The fact that she had a son was news to the employees at the telephone office, and of course his sister's McKeesport address was unknown. He continued by saying that he had come to the Telephone Company with the idea of putting it up to our employees to locate the long-lost relative in the shortest possible time.

This is how the Company worked out the problem. The Washington, Pa., Chief Operator called her colleague at McKeesport. The latter searched a city directory, and found that a man was listed who bore the same name as the Washington visitor. The Washington operator told the visitor of this, and he said he would take a chance that it was the man. This plan was carried out, and an appointment call was made.

While the visitor was waiting at the Washington office, it was learned that he was not a telephone subscriber. The Company's ability in locating his sister made such an impression on him that within two days he dropped into the office and signed an application for service.

Something new in the want-ad line has been appearing in a local newspaper. It reads as follows:

"Wanted—Persons wishing to communicate with the Youghioghenny Lumber Yards or J. R. Balsley's residence, to call up Bell telephone No. 480."

The Uniontown District began a contest for new signed applications in December, 1910. The number secured during the first three months of 1911 is as follows:

	JAN.	FEB.	MAR.	TOTAL
Charleroi, Pa.	133	107	160	400
Clarksburg, W. Va.	134	101	69	304
Connellsville, Pa.	49	33	45	127
Fairmont, W. Va.	182	150	151	483
Morgantown, W. Va.	127	72	104	303
Uniontown, Pa.	70	71	113	254
Washington, Pa.	90	77	190	357
Total	785	611	832	2228

Clarksburg, W. Va., is growing so rapidly telephonically that it has been necessary to make several changes in our Company's quarters. The Commercial Department has moved to larger rooms, and the Wire Chief has moved to the room vacated by the Local Manager. The Plant Department has lately added 2 local positions to the switchboard and is now starting extensive construction work.

CAHOON

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic City District. The Savoy Theatre of Atlantic City, regularly prints the following item in its programs:

All telephone instruments on the stage of this theatre are kindly loaned by

THE BELL TELEPHONE CO.

In order to take care of the section from North Wildwood to Anglesea, the Company is erecting 7,500 feet of 60.19, 450 feet of 30.19, and 1,100 feet of 30.22 aerial cable, which it is expected will be complete in due time to take care of the season's business.

AVIS

Bridgeton Sub-District. A subscriber living on the outskirts of Bridgeton, in making a telephone call, gave the operator the name of the person she was calling. She was connected with "Information," who gave her the telephone number. Again, however, she called by name, when "information" asked why she did not give the operator the number, she replied, "The wind is making so much noise out here I was afraid she would not understand it."

As a result of one day's work a salesman of the Bridgeton Sub-District office obtained 14 applications for a multi-party line to be connected with the Bridgeton exchange.

LORE

Camden District. During the last two weeks the Company has taken down in Camden 4 aerial cables—6,000 feet, removed 400 cross arms, 3,000 Glass and 15 miles of 0.80 W. P. and 0.80 bare wire. This is caused by the fact that our underground plant is rapidly taking the place of aerial construction.

Toone and Hollingshed, a Camden department store firm, devoted approximately two-thirds of a page in a recent issue of local papers to a detailed explanation of its comprehensive plan to provide free toll facilities for out-of-town customers.

Another prominent department store firm, The Chew Company, of Camden, is advertising free toll service to prospective purchasers.

CROXTON

Dover District. The telephone figured in what might have been a serious accident in Dover on a recent Sunday. A pair of horses attached to a double-seated phaeton became unmanageable, and the driver jumped. The runaways started toward Dover, soon covered the distance of about a mile, and entered the street known as State Street. A wheel was lost in a collision with a letter box, but the pace continued until the public square was reached. There a turn was made that threw the carriage against a post, caused the horses to lose their footing, slide thirty feet across the street and collide with a telephone pole. A man succeeded in getting a hold on the bridles before the horses could regain their feet, and saved the animals from further injury. The farmer who owned the team had telephoned into town as soon as the horses started to run towards Dover, and persons along the street were warned and ready before the horses reached town. He was notified as soon as they were captured, and immediately came into town to recover his property.

PRINCE

Doylestown Sub-District. The following entirely unsolicited letter has been received at the Doylestown office from A. C. Walker, secretary of the Birchrunville Telephone Company, a rural connecting company:

It is with pleasure that I communicate the action taken by our board of directors at its last meeting, when it was unanimously decided to extend a vote of thanks to the Bell Telephone Company for its liberal treatment in extending our circuit by the

addition of three more exchanges. Our stockholders are all satisfied with the service, and think they made a very good investment, considering the benefits and conveniences derived from the line, and not one of the nineteen would be willing to be without it at the present time.

Our line is seven miles long, has been in operation for two years, and has cost us very little for repairs. We have been complimented by all who have used it on the good service and lack of noise.

HENNESSY

Norristown District. A Norristown salesman, after numerous interviews, finally succeeded in obtaining an application for telephone service from a produce dealer near that place. The dealer was skeptical about service, stating that it would be of no use to him, and it was with great difficulty that the salesman induced him to sign. About ten days after telephone was installed, however, the subscriber, on meeting the salesman, stopped and thanked him for having induced him to take service. He stated that by having it, he was enabled to secure an additional profit of \$67 on some produce which he sold in bulk instead of taking it to market.

BEERER

West Chester District. On April 1st the business office at Coatesville, Pa., in the West Chester Sub-district, was moved from the Thompson building to one of the up to date front offices in the New National Bank building. The Plant and Traffic Departments are making arrangements to move to adjoining offices in the same building.

GREENFIELD

Trenton District. An initial order of 200 toll coupon books was recently placed with Kirby Brothers, a milling firm, near Medford, N. J. At an early date after the distribution of the books 5 orders had been received from entirely new buyers amounting, in all, to a carload of the company's products.

The Monument Pottery Company, of Trenton, has ordered 2,000 toll coupon books. A new departure in the sale of these books has been made in this instance. It is proposed that they be used for long distance service, the minimum amount of the order for which the subscriber will be responsible is \$1.00; the maximum toll, \$1.50. This is intended to cover the telephoning of orders from points as far distant from Trenton as Boston, Mass.

A group of cranberry growers owning bogs located in the pine belts of New Jersey, south of the Medford exchange, have organized another Plan "A" rural company of 6 stations.

The line will be eight miles in length, penetrating the Pine Belt. The telephones are desired especially for forest fire protection.

The local plant department has just completed arrangements for the construction of multi-party lines through the four-mile radius area controlled by the Lambertville central office. This will meet a long and persistent demand on the part of local farmers for service and will carry service to a region heretofore entirely undeveloped. About eleven miles of construction is involved. The plans call for the installation of 35 stations, half of which will replace opposition telephones.

BROWN

Wilmington District. That the telephone can save a life in other ways than by being used to summon a doctor was clearly demonstrated a few days ago in Wilmington. A subscriber engaged in washing the outside of a window lost her balance and fell from a third story. In so doing she fell directly on a loop and broke her fall. Needless to say the loop snapped, but the woman now advises everybody to "USE THE BELL."

The American Snuff Company, of Yorklyn, Delaware, recently moved its packing plant from Philadelphia to Yorklyn and has superseded from a 2-party line, non-standard contract, to a cordless monitor switchboard with 7 stations.

CHAMBERS

Washington Division

R. G. HUNT, Division Correspondent

T. P. Culley & Son, a Washington piano house, has inaugurated a scheme for business getting along the lines of our modern merchandising method. The scheme, while not new in its application to other classes of merchandise seems novel when applied to the piano business. Briefly, it amounts to selling pianos by telephone and the plan is as follows:

An expert salesman, who is also proficient in the manipulation of player-pianos, takes his place at the piano each morning, calls up a number of telephone subscribers and gives them a concert over the wire. He calls the subscribers and requests permission to play selections. The salesman usually succeeds in obtaining the subscriber's permission, whereupon the selection is played into the transmitter of a telephone, which is equipped with a large megaphone arrangement attached to the mouthpiece. This megaphone attachment was devised to increase the volume of the tones. After the "concert" is concluded, the salesman starts in on a carefully mapped out selling talk. This selling-by-telephone plan has been used by the Culley Company for only a few days, but already the firm reports the sales of 2 player-pianos. It also advises that it has obtained the names of a number of live prospects. Altogether it believes the scheme is a good one and that it will prove to be a decided stimulus to the distribution of goods. An advertising campaign to exploit its new selling method was started by the Culley Company at the time it was inaugurated.

On the night of March 15 a severe wind storm blew a large cedar tree across the A. T. & T. Company's New York-Washington trunk lead cutting off all North trunks. The first report of the trouble was received by Foreman Beetham at 7:30 P. M. It was a big job to repair this lead, some 30 lines being cut out of service, but the work was completed and final O. K. sent in on all trunks at 12 o'clock midnight.

The following brief but convincing testimony in appreciation of telephone directory advertising was recently received from a prominent Washington subscriber:

We consider the ad in the telephone directory, on personal investigation, to be the most effective and to give the greatest return, for the cost, of any we now have in effect.

Four profitable calls were recently made in one morning by W. D. Owen, a Washington salesman. He received office memoranda to see 4 subscribers and arrange for removal of their telephones to new locations. From each one of the subscribers he obtained, in addition to their signed "move" orders, applications for extension stations at the new locations.

Contracts for two new rural lines in this vicinity have recently been closed, one with 6 subscribers in connection with the Prince Frederick exchange and the other with twelve subscribers in connection with the Gaithersburg exchange. The latter line provides service to a group of subscribers in the vicinity of Travilah, Md., and opens up a hitherto undeveloped section.

A subscriber recently called at the cashier's office and made this satisfactory statement: "It is always a pleasure to pay my telephone bill because I get so much satisfaction out of the service."

"The way some of them operators use a calculator would make you think they were pumpin' water for a bucket brigade!"

"Sed the messenger girl as she bumped into a Supervisor."

—Switchboard Success

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LAKE CRAFT AT ERIE



LAND HARBOR LIGHT HOUSE, ERIE, PA.

THE ONLY U.S. WARSHIP ON THE GREAT LAKES
U.S.S. WOLVERINE STATIONED AT ERIE, PA.

Experience, Not Enthusiasm

The Basis of the Erie Business Man's Optimism



THE similarity between Erie in the extreme northwestern portion of our Pennsylvania state territory and Philadelphia in the extreme southeastern portion of the same state, is indeed striking. The man who laid out Erie's streets adopted William Penn's gridiron plan. William Penn provided five parks for his city. To-day in Erie there are five generously designed parks, affording great comfort to the townspeople. Central Park's elms shade the heart of the city; Cascade park lies to the west; Glenwood park on the south; "The Cedars" on the east; Lake Side on the north. Pennsylvania has two ports—Philadelphia for the sea, Erie for the Great Lakes. Philadelphia is world famous for its locomotives; Erie for its Corliss engines. The Revolution revolved about Philadelphia; Erie and the War of 1812 are synonymous.

Erie, Pa., is a red-hot manufacturing community throughout the four seasons. In the summer it has added activities on account of the shipping on the Lakes; the attractive vacation communities along the lake shore; the health waters at Cambridge Springs, a little way to the south; the vineyards that surround the city on three sides.

There are 294 concerns now engaged in man-

ERIE PENNSY

ufacturing in the city. Employment for about 100,000 figures will be swelled in a few months, when business is at its peak. The new Erie Electric Plant, east of the city, a new plant will occupy a large area.

Erie's population is expected to reach 100,000 more people than Harrisburg.

Erie leads the world in stationary engines, boilers, and steam engines. It is also said to be the center of the world for wringers, horseshoes, and any other community on the Lake.

Last summer more than 100 boats entered Erie's harbor. The city has a natural breakwater which has been a marvel for many years. Ships that carry ore, wheat, flour and lumber, manufactured articles and minerals. The State built a public pier at Erie for the storage of steel and concrete. It is a popular recreation spot, as well as for the largest lake craft.

Waldameer park, on the north, is a meeting point for hundreds of vacationers. This is the most widely known vacation communities, but the city is on the east and the city reaches scores of colonies class with Waldameer.

In 1859 a certain Dr. Williams discovered oil. While prospecting miles south of Erie the oil was found in the ground, and when a stream of crystalline water is still in the ground. In 1884 the doctor discovered that the water had medicinal qualities. This discovery marked the healthseekers' Mecca, a bridge Springs, with its health waters, through two continents.

North East, Pa., which is implied by its name, is one of the world. Walker's product of Erie County grape juice is made at North East, over the New York State line.

General "Mad" Anthony Wayne, second floor of the old building in 1796. He was buried in the staff. Thirteen years after his death, Isaac Wayne, came to the Erie, Pa. As it is the whole body in saddle, a former friend of the city, and under his direction a kettle, and boiled until the bones were then carved, Delaware County. The kettle is still in existence. It is one of the many valuable museum attached to the city.

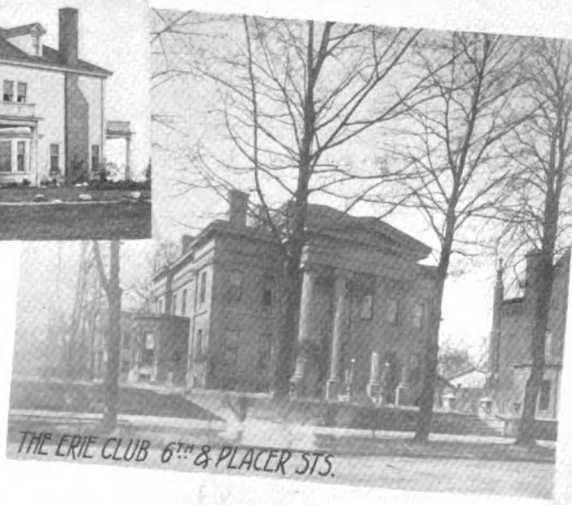
Commodore Oliver Hazard Perry, the name of Erie forever in

JULIUS C. SIEGEL RESIDENCE
SIXTH & WALNUT STS. ERIE, PA.

ERIE COUNTRY CLUB "KAHKWA"



M.H. TAYLOR RESIDENCE.



THE ERIE CLUB 6TH & PLACER STS.

ERIE PENNSYLVANIA

Erie, and they furnish 25,000 men. These last 25,000 within a few days at the new Genoa of the city line. This tract nearly 1,000 acres

66,592, and it is estimated for 1913. Erie has 2,343 acres, the state's capital. In the building of staple organs and perambulators to make more sterilized and gas mantles than anywhere. In two thousand vessels. This harbor has 15 miles in length. It is a perfect structure and affords a population as docking facilities

Lake Shore, is a summer resort of Pennsylvanians. Known of Erie's vacation electric lines to Buffalo and Cleveland on the west, whose charms are in a

Gray went on a questing over a tract some doctor poked his cane and he pulled his stick out and followed it. That coming from the earth. Covered that the water of a peculiar nature. The community as a whole and the fame of Cambridge hotels, has spread

the direction from Erie the grape juice center is made there from the vineyards. Welch's Westfield, N. Y., just line.

Mad Anthony Wayne died on the Block House at Erie at the foot of the flagstaff his son, Colonel, the body of the General was impossible to carry, Dr. J. C. Wallace, General, was consulted, the body was placed in reduced to a skeleton. Buried to Radnor Church, and buried there. Presence, and forms one relic on view in the Erie public library. General Perry placed the the foreground by his



MODEL OF PERRY'S FLAGSHIP NIAGARA NOW IN MISERY BAY ERIE HARBOR



"MAD" ANTHONY WAYNE'S BLOCKHOUSE, ERIE, PA.



PERRY'S FLAGSHIP LAWRENCE, WHEN RAISED IN 1875-ERIE HARBOR

"We have met the enemy and they are ours" victory at Put-In-Bay. Perry's brigs, "Lawrence" and "Niagara," were built at Erie in 1812. They formed the backbone of a fleet of nine vessels. During the battle the "Lawrence," flagship of the fleet, was so badly battered that Perry and his flag, bearing the singularly inspiring phrase, "DON'T GIVE UP THE SHIP," were transferred to the "Niagara." Both vessels survived the battle. At the close of the War of 1812 it was decided that the brigs had outlived their usefulness. Therefore, the "Lawrence" and "Niagara" were sunk in Misery Bay, which is a part of Erie Harbor. The "Niagara" lies there to-day. In 1875 the "Lawrence" was raised, and her keel and ribs were taken to the Centennial Exposition.

After the exposition, the hulk was stored in a Philadelphia warehouse. The building and its historic contents were destroyed by fire in 1877.

All of Erie's characteristics are dominated by the one great quality—Stability. When the panic of 1907 made its trip through the country Erie was omitted from the itinerary. So while other cities were checked in their development, Erie went marching on.

Erie business men will tell you that there is no better town in the United States in which to work and play. A visitor who remains in the city for a few days soon learns that this talk is not based wholly on enthusiasm, as is the case in so many cities. In fact, Erie men base their statements on *experience*, not enthusiasm.



ERIE COUNTY COURT HOUSE, ERIE, PA.



ERIE'S BUSIEST STREET STATE ST. NORTH FROM 11TH ST.



LAKE FISHERMAN HIS CREW AND CATCH, PUBLIC STEAMBOAT PIER IN THE BACKGROUND.



ANCHOR LINE WAREHOUSE, ERIE, PA.



The Telephone Society of Baltimore, March 1, 1911

Art and Science in Plant Work

(Continued from page 1)

kind invitation to address you, said that I might use my own discretion as to the subject of my address, thus giving me a free lance in this respect; but what has concerned me most has been what message I could bring you that would most interest you, and it has led me to the self-imposed subject of "Art and Science in Plant Work."

Art, it is said, always relates to something to be done, and science to something to be known. This definition rather appealed to me, for there is certainly always something to be done and something to be known about what we have done and are doing in telephony.

This consideration of "Art and Science," as applied to Plant work, has very naturally, and to a large extent, been the result of our work in the Harrisburg Division, and I thought, perhaps, a brief outline of this growing territory might not be out of place. The Division headquarters, as you well know, are in the Capital City of Pennsylvania. "Harrisburg is in Dauphin County, and is located on the east bank of the Susquehanna River, 104 miles northwest from Philadelphia, 240 miles east of Pittsburg" and 84 miles north of Baltimore. It is situated at the converging point of Cumberland, Lebanon and Lancaster Valleys, and in its early history was known as "The gateway to the West."

When John Harris, the founder, in 1784 laid out the town of Harrisburg he advertised in the Philadelphia papers that "The location is on the main road through the continent from Philadelphia to Fort Pitt." Main road through the continent may seem a trifle bombastic as applied to the pack trains from the East to the head of the Ohio, but, as a prophecy, never were truer words spoken. Harrisburg to-day is on the great artery through which flows a ceaseless tide of travel and trade between the Atlantic and the garden valley of the Mississippi, the Golcondas of the Rockies and the Sierras, and the Sunnylands of the Pacific. Thus for our Divisional Headquarters we not only have the historical Harrisburg, but all its convenient arteries of to-day represented by the main line of the Pennsylvania Railroad, the Northern Central, the Cumberland Valley and Reading Railroads radiating much like the spokes from a wheel leading to the North, West, South and East.

There are comprised in the Harrisburg Plant Division forty-three counties covering an area of over 27,000 square miles, with a population of something over 3,000,000. Its people take out of the earth bituminous and anthracite coal, iron, limestone, slate and building stone. Its manu-

factures are varied, covering steel, railroad equipment, cement, textiles, wearing apparel, shoes, etc. In addition to the usual farm products, down in Lancaster County, enormous tobacco crops are raised, which has made this county per square mile the richest in the United States.

In this central Pennsylvania territory the Bell Telephone Company operates 140 central offices and 75,000 stations; of this number about 5,000 are on rural lines connected directly with this Company's switchboards. The offices vary greatly in size, few of them being what would be called large offices; for instance—the Scranton central office, located in the northeasterly corner of the Division, has the largest number of stations (8,100), and following comes Harrisburg 6,000, Altoona 5,600, Reading 4,800, Wilkes-Barre 3,600, Allentown 3,100, Lancaster 2,700, Williamsport 2,600, Easton 2,200, Bethlehem 2,100, these being the ten largest, leaving 130 offices ranging from less than 100 to 2,000 stations. The housing of these central offices is mostly in rented quarters; fifteen central office buildings are owned by the Company and 125 central offices are rented. In addition to the rented central offices there are about 50 other rented places, including commercial offices and pole yards.

The majority of the subscribers' plant is aerial. Of the 140 central offices 10 have underground construction. In these 140 central offices we have any kind or brand you may readily name: Automatics, No. 1 common battery, No. 8, No. 9 and No. 10 common battery, magneto selective and non-selective. "Variety is the spice of life," and we have it in switchboard equipment, each kind placed for its own particular purpose. The automatics are fast losing out, a number of them being replaced in the last three years; in a short time we will have no more of them owing to the fact that it is not feasible to give rural line service from these little automatic switchboards.

The very scattered nature of the offices in the Division requires an organization that is adapted to each particular district, one that is sufficiently flexible to take care of the local conditions economically and properly. At Scranton and Wilkes-Barre (18 miles apart) which are closely connected by fast trolley and train service, we have two Plant Chiefs, one at Wilkes-Barre and one at Scranton, who are responsible for the maintenance and line order work in their respective districts, and a Construction Foreman who handles the "heavy artillery"—work of pole lines, cables and underground construction, these men reporting to a District Superintendent. This organization gives specialists on maintenance and line order work, which is closely associated with maintenance, and an expert on

heavy construction. While this appears to be an ideal organization for a district such as Scranton, it is not for some other places. At Altoona, instead of a Plant Chief, there is a Supervisor, and to us a Supervisor is one who is responsible for all of the work in his district (maintenance, line orders, heavy construction and preliminary construction engineering). To the Supervisor reports a central office Wire Chief and a District Foreman, the District Foreman handling the heavy construction work and also the line order work. The Division is divided along these lines into seven districts with a District Plant Superintendent at Scranton and one at Harrisburg reporting to a Plant Superintendent.

Starting from the Division headquarters, at Harrisburg, to visit the Supervisors or Plant Chiefs, the distances run about as follows:—

To Altoona	136 miles,
" Williamsport	100 "
" Wilkes-Barre	110 "
" Scranton	130 "
" Reading	54 "
" Allentown	90 "

Each Supervisor, in addition to his other force, has an Engineering Inspector, who, with the Supervisor and the District Superintendent, recommends additions to plant. These studies with recommendations are forwarded to Harrisburg, where, in the office of the Plant Engineer, they receive examination and checking to see that they fit into the standard layouts of the towns, size of cables, etc., and there the estimates are written.

One of the peculiarities of the Division is the long haul pole lines with very few circuits. From Harrisburg to Altoona there are 136 miles of pole line with an average of 4 circuits; from Harrisburg to Scranton 130 miles of poles with an average of 8 circuits, so that while our pole mileage is high, the combined circuit mileage is comparatively low. If we keep on for the next few years in increasing in exchange stations and toll circuits as we have in the past two years, this condition will change and we will have a fair average circuit mileage on these long haul pole lines. Last year Mr. Crosman, our Division Manager, showed me that we had an increase of 30 per cent., including all classes of stations, and these increases are contributing largely to increased toll usage.

In mapping out any big thing to be done one of the first considerations that enters the mind is—*who* are the men, *where* are the men and *what* men are best suited for one thing and what men for other things. The art of knowing men intimately in their work, their fitness, natural ability, education and extent of their experience, if rightly sized up, will permit of the

selection of men who, with more training added, will develop into towers of strength, which are needed in this Company's present-day telephone development. It, therefore, is of first importance that we should be fortunate in this matter of picking the right men for the places that they are best qualified to fill. If we secure the right man, everything else seemingly becomes secondary, for the man on the job is the most powerful factor in the successful accomplishment of our work.

The art of picking men is not a new one. From time immemorial it has been one of the concerns of men and corporations to find the man who could do properly the thing to be done. The more I study this art of picking men, with its complexities, the more stress I am inclined to acknowledge its importance.

In considering what is the type of man to pick for our work and who are the men, one thought that always stands out paramount is that they shall be—first, men of common sense, and, it is not common as ordinarily applied, for common sense is very often exceedingly uncommon, due to its scarcity. The man may be smart, shrewd, a good scholar and brilliant, but if he does not possess the fine qualification of being sound on common sense, we may find that, with all other accomplishments, he lacks what is most needed.

Men to-day in greatest demand are those who are well furnished with this common sense, put in this homely way by one writer—that a certain young man, with some accomplishments, had decided that he must do something for himself and he placed on his cap the sign, "For rent." This sign did not attract employment for him, and in his dismay he turned to his indulgent parent, who said, "Yes, young man, you are for rent, but you are for rent unfurnished. The world is willing to hire, but they want heads that are furnished." The furnished men do not stand still, they climb the efficiency telephone ladder that I have pictured in my imagination as being one that is "V" shaped, where there are very narrow rungs at the bottom of the ladder without much space for handholds, but on the successive upward steps the rungs become wider, permitting of greater handhold, and as the climb is made upward greater width of rung is found, bringing strongly to mind the fact that the opportunities of to-day are as great as they ever were for men who can fill upper ladder rungs. There may appear to be a crowd at the lower rungs, but it is within the power of any earnest competent worker to secure handholds away from the lower rungs where there is more space and greater opportunity for development. Thus we find every day that opportunity does not knock only once as has been said, but opportunity is unceasingly and everlastingly pounding for the man to rise up and climb, and make his own career. It depends entirely on the man for successful climbing, and what counts most in one's work should be made to show in its best form, because in every one's work some one thing can be made to count most and be made to stand out in its strongest light. This will be an aid in bringing you and your work into prominence, for one must not only do his particular work right, but he must make his boss believe in him, and that he does his work right.

As a preliminary step in our ladder climbing it is a most excellent plan to have a very clear understanding of ourselves; what we think of ourselves, sizing up the question entirely from our own view points, and in connection with the work that is ours. There is, taken as a whole, too little of this self-examination or taking stock. It costs very little in effort to do it, and if honestly thought out leads into quite deep

thinking. It may run something like this: You say to yourself, "What is my work, what are its elements, of what does each element consist, what are they for and how do they make up my work as a whole?" and then figure out what your interest is and how you are handling yourself in relation to the work which you are doing. This self-inspection, if properly made, enables you to know just about what you can do and what counts most in your work. It is important, in placing this self-appraisal, to be perfectly fair to yourself, for it will not only enable you to make improvement in your present job, but it will force you to the front, for to know yourself most intimately and the detail of your work gives the real worker sounder judgment, initiative, nerve imagination and all other harmonious and desirable things to have that make up all that is essential to the scientific worker, remembering that there are other jobs in each branch of the Company's organization better than any that is held by any one present to-night. While this fact does not for a minute make any of our jobs smaller or less important, but it does indicate that there are vast opportunities in the telephone field for advancement by nearer perfection of our work, practically telling us that we should be found fully equipped and ready when we are needed for a different or better position.

In the early days of the telephone the pioneers, Messrs. Watson, Sanders and Hubbard, in running the business and after the telephone had been covered by patent, needed a General Manager, and at a time, too, when they had but little credit, as their telephone was then newly born and was meeting with difficulty and opposition in securing a footing. So scanty was their credit that when a small purchase of goods was made from Tillotson, No. 15 Dey Street, New York, for \$7.00, they were told that the goods were ready and so was the bill. These three pioneers for their General Manager sought Mr. Theodore N. Vail, who at that time was in the postal service at Washington with a large force of men under his direction, and where he had made substantial and important improvements in the mail service. These pioneers believed that he was the *one man* wanted because of his comprehensive view of all railways and telegraphs and one who could put the telephone business on a sure footing and start its development along the proper lines. Mr. Gardner G. Hubbard said to Mr. Vail: "We rely upon your executive ability, your fidelity and unrelenting zeal." This was in 1878, and Mr. Vail's reply was: "My faith in the success of the enterprise is such that I am willing to trust to it, and I have confidence that we shall establish the harmony and coöperation that is essential to the success of an enterprise of this kind." Mr. Vail accepted the position and started to build the telephone structure, and after nine years' service, having placed it on a sound basis, and it having developed into a great business, left the Telephone Company and engaged in other enterprise.

It must appeal strongly to us that Mr. Vail's work in 1878 was stupendous in nature, when it is recalled that the telephone was regarded as a scientific toy, admired and marveled at and hard to secure subscriptions to the stock, and that in a moment of discouragement the telephone had been offered to the Western Union Telegraph Company for the paltry sum of \$100,000.00, and, in refusing to buy it at this price, the President of the Western Union Company referred to it as an electrical toy.

A number of years later we find there was another imperative demand by the telephone interests—a President wanted for the great Amer-

ican Telephone and Telegraph Company, and in 1907 Mr. Vail was induced, much against his will, to reënter the telephone field, and, leaving his comfortable farm in Vermont, to finish out the telephone structure as he had planned it in the early days. This emphasizes to us in its strongest light the importance of the proper selection of the right men when big things are to be done.

Important work has been done in the last few years by the Chief Engineer and Plant Manager in providing our "circulating library," as some one in Harrisburg has called it. This library is composed of the very many helpful Engineering and Plant Circulars. It has been the custom to place these circulars on the bulletin board so that the men might note them. So great has been the interest in these circulars that we have arranged for extra sets bound together under one cover, so that men may draw them out and taken them home for study. It is an art to arouse sufficient interest in men to the extent that they request that they be permitted to take home these bulletins in order that they may become more familiar with them, studying out the details in their own time. But these bulletins form only a small part of our circulating library, for we have, in addition, the many other helps prepared at a great expense of time and money, specifications on aerial lines, aerial cable, block distribution, sub-station wiring, underground conduit, storage batteries, machines, laying out subscribers' plant and other guides along these and similar lines. Taken together, these specifications and circulars form a very valuable collection of telephone practices. It is a fine art to be booked up on their contents, so fine an art that any one who knows clearly all of the ways and means of doing the work, as contained in them, should be considered a master of the art, whether he be an installer, a central office man, a lineman, or in any other position, for these books do not relate to only one man's job, but cover the details of all classes of work, which impresses the mind with the importance of knowing fully the details of what we are going to do before we attempt to do it. Taking as your guide the practices from these books and analyzing all of the things that enter into the doing of any one thing by considering separately each element of the job, it is possible to so scientifically map out the way the work is to be done that it will be easily done and better done by this preliminary consideration than if done without giving it the advance thought necessary.

Art and science enable a worker to coöperate on a pretty high plane. It equips him, as nothing else can do, for broad thinking. If the observation of the man has been keen and right, he knows more than the man who does not observe closely. If he performs the work assigned him in accordance with instructions, and from his own observation watches the results secured, he will pretty surely become an artist in his line. To this type of worker coöperation becomes a pleasure.

Coöperation is said to be the keynote of telephone success. Coöperation does not mean always to have your own way; on the contrary, it means a complete understanding of your own work and sometimes the other fellow's, too. It means that the problems as they come up will be so considered that their settlement will be for the best interest of the Company and leave the parties concerned happy over it and with the feeling that they have unitedly done their best.

Coöperation is not bossing the other man whom you may have no right to boss; it is work-

Art and Science in Plant Work

(Continued)

ing with him, and, if need be, helping him to a clearer understanding of things as they appear to you.

In coöperating we may, if we use our privileges fully, be permitted to diffuse knowledge that we have obtained. This may help the other man at a time when he is most in need of assistance of this kind. In helping the other man we unconsciously broaden ourselves; we get on a wide track basis and become of greater use to ourselves and our Company.

There are certain definite things that the Plant Department stands responsible for, and the degree of success in which they are done is dependent on many factors. I have tried to show that for any great work the man on the job is the important factor. The Plant Department is responsible for the proper maintenance or up-keep of the telephone plant. Mind you, I say proper, for it is highly important how we look at this question of maintenance. Now, what is "proper" in this sense? I ask this because to a considerable extent standards are had by comparison; the good with the fair, the fair with the bad, and so on, but to get right back—what is proper maintenance? It is the keeping of the plant in such a condition of fitness that a subscriber will never be out of service or have noticeable interruption to service due to any ordinary thing, for to-day there is no excuse for interruption to service from any ordinary thing. I believe that if the majority of the men would recognize this fact it would have a wonderful effect on the grade of maintenance given and in the care of the plant, to so protect and care for it and in such a manner that it will not wear out, but rather that it will become obsolete, for after all it is a habit whether we have good care or poor care on our up-keep of plant. More depends on the training of the man who maintains the plant, so as to prevent and clear trouble, than anything else, provided, of course, that the construction is of a type that does not give unusual trouble.

In addition to the maintenance of the plant, the Plant Department plans the new plant and carefully watches the growth of the business and uses of the plant, in order that there will be ample plant and in the right locations. One of the first things to think about is to begin to plan ahead, and, in order to have this advance thought, it is necessary to know exactly what the Commercial Department expects to do at the different places and when it expects to do it, so that when the Commercial is ready for its campaign the plant will, if possible, be ready. It is of inestimable value for the Plant to have as long a notice as possible from the Commercial of its plans, for to provide plant takes time—for the planning, one month; for preparation of specifications, plans and estimate, one month; for approval by officials, three weeks; to order material and complete the work, two to four months. Total time to do a fair-sized aerial cable job, six months.

It is, therefore, the part of wisdom to so schedule our work that it may be done without undue excitement or rush, which can only be done by advance scientific planning between the departments concerned, Commercial, Traffic and Plant. We have had this brought home to us very strongly owing to the fact that in some of our towns our ordinances are not very broad. They limit the places where plant may be placed to certain streets and alleys, and, perhaps, on the very streets that we desire to use, plant may

not be placed. This and a few other obstructions make us stop and think pretty hard, first planning for a clear track to build plant before we write estimates to do the work. It has been surprising the number of these hold-ups that come up in a scattered territory that is having a quick development, and these matters of right-of-way come slow, and naturally so, for it takes time to have enactments of councils passed so that work may be done. Therefore, an inventory of the things that may hold us in check, even though we may have the plans, the money and everything else to build, is worth all the advance planning that we can intelligently put on it.

We sometimes plan an inspection trip, perhaps to investigate some one thing or to get a general idea of how the men appear on their jobs and how the plant is kept up. It makes a wonderful difference how this inspection trip is conducted, in order that the employees will not feel uneasy, that they will feel perfectly at home with the visitor, and, if they are, they will converse freely regarding their work, and perhaps make inquiries that will permit the trip of the one making the inspection to be of immense value. It is an art to make these personal inspections right up to the mark and a science in recording what we have seen and to give satisfactory answers to those with whom we have come in contact, completing the trip with the feeling that we have helped the men. One of the trips recently made was by Mr. Hayward, Chief Engineer, disclosed by a memorandum of the trip handed to me by Mr. Nowell. The trip was made without any previous knowledge of the men in the district that it was to be made, and from the comments of the men it was one of the cleverest and most helpful inspections that has been made. We find our Chief Engineer starting out regarding a specific job, and in his travels he comes in contact with the men in charge of the various places and listens to some men who have an inquiring turn of mind and gives them answers, or arranges to give them answers, on things that were discussed. The Chief Engineer's letter to the Plant Manager is given below:

"Last week I made an inspection trip through the . . . districts. The objects of this trip, outside of one specific job, were:

"1. To find out the point of view of the Plant men down the line towards the equipment and building work which was being done, and to get their criticisms.

"2. To find out whether the standardization and circular work being done by the Engineering Department was having any real effect on Plant employees down the line.

"As a result, of course, I did not make what you would call a careful inspection of the offices, but talked quite minutely with the men. I was very favorably impressed with—

"1. The good maintenance of the buildings and equipments.

"2. The good condition of the outside plant, especially that which has been put in lately.

"3. The neatness and apparent accuracy of the records.

"4. The intelligence with which the instructions which have been issued by Philadelphia have been absorbed and followed.

"5. The intelligence of the questions and criticisms in connection with the information that has been given out by the Engineering Department.

"I spent quite some time with Mr. ——— and Mr. ———, both of whom impressed me as 'live wires.'

"Let's be pleasant when we can."

The Chief Engineer closes his letter by saying, "Let's be pleasant when we can."

This kind of a trip is one that not only pays dividends on sight, but it keeps on compounding. It is a personal touch, and so cleverly done that I could not refrain from telling you men to-night about it. It pays to be pleasant, especially when we have the opportunity to be pleasant, and if a man does something in his work that is pleasing, let us tell him so.

It is an art to be able to keep a schedule or being on time in anything. It is not so easy to do, however. No doubt we all realize this, but to some of the men here, who watch schedules, it comes right home. When traveling on the road it is a dandy feeling to find your train pulling out right on the dot, to know that the train is not running behind, and to be able to complete the journey on time. So much depends on time to the traveler. This schedule keeping in railroading is almost too common to mention, but nevertheless it is an achievement to keep the schedule—a promise. Bosses very often size up things by schedules, kept or broken. I think most of the failures on schedules have been due to insufficient anticipation and proper consideration of time as it is fleeting away, and, when the time has been unduly short, by not resourcefully adopting some unusual measure to keep the schedule. Some lieutenants keep the schedule and run ahead of it, others almost always keep it, and others—well, if you must know, some others just do not keep it. It is said about lost time, "The most reckless spendthrift is the one who squanders time. Money lost may be regained, friendships broken may be renewed, houses and lands may be sold or buried or burned, but may be bought or gained or built again. But what power can restore the moment that has passed, the day whose sun has set, the year that has been numbered with the ages gone?" Broken schedules mean new schedules, for we cannot gain the time that is passed.

In considering the cost of things it is a science to see men and things exactly as they are, and to be able to get the bare facts in the case. The matter of ascertaining the cost of doing work on a unit basis, as the cost of a pole in place, a crossarm, an installation, a drop wire, or the total cost per station for repairs per month, and then comparing the cost obtained in one district or division with similar costs in other districts or divisions. Right here it becomes a scientific procedure when we begin to compare the cost of anything in one division with another division. We may find that the efficiency and rate of pay of the men is about equal, and that train and trolley service is excellent in one division, while in another, where the same amount of work is being done, the transportation service is poor. This has been noticed more especially on installation work. We have a few cities where the trolley service is frequent and very little time is lost in traveling between jobs. We have, in other towns, trolley service on a fifteen-minute and half-hour basis, and in one town of 25,000 inhabitants, up in the coal regions, there is practically no car service, so that, comparing installation costs between one district and another, suitable allowance must be made for the time lost in traveling. It, therefore, would appear that, after the matter of traveling has been reduced in each district to the minimum time, to obtain the comparative efficiency of men on work would be to consider the time on the job. We find, taking it as a whole, that installation and drop wire costs vary but slightly on the productive work; that is, after a deduction is made for time lost in getting from place to place. On pole line work we find it is neces-

sary to know pretty nearly the exact conditions prevailing in the various parts of the territory if we are to obtain a clear idea of the elements entering into this class of work. In many localities 90 per cent. of all poles set are in rocky soil. This involves the blasting of many of the holes. It then becomes a science to be able to determine what jobs are considered to be efficient and those that are not, for the total cost of a pole unit does not disclose the fact that the job has been satisfactorily engineered and completed at the right prices. In some of the districts it is the tendency for the poles to run small, while in other districts, in the cities, they are nearly all large ones. In some boroughs all poles must be shaved and painted, in order to comply with borough ordinances. In one borough we recently had to paint about 200 poles, the majority of which were on the edge of a coal mine, through the main street of one of the smaller coal towns.

In a recent examination of several hundred pole jobs, a committee in conference decided that fully 15 per cent. of the pole line jobs have too many men on them. This is brought about partially by one foreman having several jobs to do in a locality and where the jobs are quite a distance apart, making it impracticable to split the gang, also where some of the jobs are large enough for all of the men, and others too small for all of the gang. We think, by scientifically analyzing the pole line work to be done by each particular gang, that the Construction Foremen are going to save considerable time and money. We have adopted, as a temporary expedient, the plan of stating exactly how the work shall be done in its various parts, and the number of men that will be employed to do the work. In other words, we are endeavoring, from exact knowledge of what has happened in the past year on this class of work, to map out the manner of doing the work so well that it may be more easily and economically done.

But there are other units besides poles that are not so hard to analyze; for instance—a drop wire is nearly the same everywhere, so is an installation, but on maintenance units, in comparing the stations on maintenance between districts, we find that some things are again hard to analyze. One district may have 15,000 stations with practically no rural lines and no extensive toll lines, while another district, of about the same number of stations, may have 1,000 rural line stations and an extensive toll line area to maintain. In the latter case the district gets no credit for the rural line stations or the extra toll line maintenance involved on the average cost per station for repairs, notwithstanding the fact that the lines on which these stations are connected must be maintained to the borough line or meeting point with the rural line company, and that the toll lines may approximate several hundred miles.

The keeping of costs on a unit basis has been the means of excellent improvement, not only in the lowering of costs, but in the character of the work done. The investigation into cost figures has led to a greater amount of supervision as to the cost of things and incidentally to a greater amount of inspection in following out these investigations by broad-minded people. It has brought about better work and greater efficiency in the men and methods. The better figures, in many cases secured, have in no case resulted to a disadvantage to the employee; it has had the opposite effect, in practically every case that I know of and has resulted in a betterment to the workman everywhere. He is expected to give greater efficiency, and, by the

supervision exercised and helps given, does give it, and is graded accordingly.

In the matter of the attractive repair figures that have been made in the past several years, a large percentage is due to the splendid improvements in plant construction. Aerial cables have replaced open wires and underground cable in the large cities has replaced aerial cable. The abandonment of house-top construction and tall mast terminal poles for interior block and rear property cable distribution, has also contributed to a large measure to the many economies secured in the up-keep of the plant.

It is a science to know what you should pay for any one thing. Take the one item of the use of electricity. By keeping suitable records of the power and light that is being used, and making a score as to the amount of power and light that should be used, provided that no more current is put in the batteries than is necessary, and no more lights are kept burning than are useful. In one exhibit, that we have had recently, a Supervisor has made a saving aggregating \$1,000.00 per year in one small district of 10,000 stations. This exhibition was worth many times the initial amount saved, as it made all other Supervisors anxious to create similar savings in their districts. The cost of power and its use is an item that can always receive intelligent investigation, feeling reasonably sure that some saving will accrue if scientifically studied.

The Telephone Companies are not alone in their work of better methods and more efficiency, and then more and more efficiency, but they are quite nearly in a class of their own, for the matter of an exact knowledge as to what they have been doing is not at all new to them.

I recently read a very interesting item regarding one Frank Gilbert, who applied science to brick laying:—

"Brick laying is the oldest trade now being practiced in the world. It would seem natural that in a trade where no advance has been made in 2,000 years, scientific management would show the least results. Frank Gilbert declared that he would try the principles of scientific management of his trade. He set to work with his wife and studied the thing out scientifically for three years, working at nights and on his holidays. One by one he eliminated the traditional motions and devices for brick laying. He had all his life, for he was an expert bricklayer himself, taken a step to the right which he cut out.

"He had stooped to get his bricks, lifting his 250 pounds 1,000 times a day. This he cut out, too. He finally had it down to such a science that he had invented a way of laying bricks in which, at the worst, there were but five motions to a brick, where before there were eighteen. In one case he had one motion to the previous eighteen.

"He told the union men that he would give them rates above the union rates—but that he would be his own boss and that they would have to lay bricks his way. He put a set of teachers over the men and had them laying 350 bricks per man per hour on a hard wall where before they had only done 120 bricks per man per hour, or from 1,000 bricks a day to 2,800 bricks a day per man in eight hours."

A thorough understanding of all of the facts pertaining to any one class of work by a worker, and back of it the energy to do the thing in accordance with his understanding of the facts, will win laurels for any man. "Energy will do anything that can be done in this world, and no talents, no circumstances, no opportunities will make a man without it."

An evening thought: "Believe in yourself, believe in humanity, believe in the success of your undertakings. Fear nothing and no one. Love your work. Work, hope, trust. Keep in touch with to-day. Teach yourself to be practical and sensible, then you cannot fail."

Organization and Territorial Changes

F. Lawton, Jr., formerly Contract Manager, Baltimore, has resigned to accept a position with the A. T. & T. Co. in New York.

F. S. Whitman, Supervisor of Salesmen, Baltimore, has been appointed Contract Manager.

J. J. Walsh, Adjuster in Cashier's office, Baltimore, has been appointed Supervisor of Salesmen.

L. W. Griswold, Division Manager's office, Pittsburgh, has been appointed Division Publicity Manager.

A. Stein, Jr., Commercial Engineer at Pittsburgh, has resigned to accept a position with the A. T. & T. Company in New York, and L. R. Brooks will have charge of field development studies and related work.

S. E. Warrick, Stenographer, Division Manager's office, has been transferred to Chief Clerk, Butler District.

W. H. Gallaher, Fieldman, Plant Supervisor's office, has been appointed District Engineer, Butler District.

M. H. Hahn, Specification Writer, Engineering Division, has been appointed District Engineer, New Castle District.

C. F. Schriver, Foreman, has been transferred to Cable Foreman, New Castle District.

L. T. Wey, Record Clerk, Cedar District, has been appointed Fieldman, Pittsburgh District.

R. W. Riley, Central Office man, has been appointed Record Clerk, Pittsburgh District.

J. G. Gates, Fieldman, Plant Supervisor's office, has been appointed Cable Foreman, Pittsburgh.

E. A. Barlett, Foreman, has been appointed District Line Foreman, Pittsburgh Plant Supervisor's office.

A "Central District," with headquarters at 1230 Arch Street, Philadelphia, has been created by merging the Down Town, North Philadelphia and West Philadelphia Districts. Branch commercial offices will be maintained at 17th and Diamond Streets, 1705 South Broad Street and 52d Street and Lancaster Avenue.

W. W. Henderson, present District Manager, North Philadelphia has been appointed District Manager, Central District.

S. E. Tinkler, Jr., present District Manager, Down Town District, has been appointed Contract Manager for the Central District, reporting to the Philadelphia Manager.

Effective April 1, the Publicity Department titles of G. E. Gable, Copy Supervisor, and C. E. Rolfe, Directory Advertising Supervisor, have been changed to Copy Manager and Directory Advertising Manager, respectively.

C. H. Mott, Tioga Central Office, Philadelphia, has been appointed Senior Switchboard Inspector at the Kensington Central Office.

C. D. Laferty, Rights of Ways Assistant, D. & A. Company, has been transferred to a similar position with The Bell Telephone Company of Pennsylvania.

H. H. Stewart has been appointed Specification Writer, Engineering Department, Philadelphia.

L. F. Boyle and H. C. Linn, Traveling Auditors, Pittsburgh, have been transferred to Philadelphia.

E. W. Leonard, of the Paymaster's Office, Pittsburgh, has been transferred to Philadelphia.

Stephen Chipko, formerly Plant Clerk at Uniontown, Pa., has been transferred to the Plant Supervisor's office at Greensburg. E. B. Walsh, formerly Central Office man at Connellsville, Pa., will assume the duties of Plant Clerk at Uniontown.

Telephone Societies

The Philadelphia Telephone Society

1420 Chestnut Street
May 2

Speaker: H. Mouradian.
Subject: Unannounced.

The Telephone Society of Baltimore

5 Light Street
May 3

Speaker: E. L. Mattice.
Subject: "Rural Lines."
Speaker: W. A. S. Onion.
Subject: "A Trip to Niagara" (Illustrated).
At this meeting officers will be elected for the ensuing year.

Atlantic Telephone Society

April 18

Speaker: J. M. Repplier, Division Manager Atlantic Coast.
Subject: "Our Telephone Business." (Illustrated with 60 lantern slides.)

The Transposition Club

Hotel Henry, Pittsburg
April 21—Regular Meeting

P. C. T. Club

April 27

Speaker: J. H. Daly, District Foreman.
Subject: "Plant Conditions in Trenton."

The Spare Pair Society

Kugler's Restaurant,
Chestnut Street above Broad, Philadelphia
April 19
No speaker.

Reading Plant School

April 18

This being the closing night of the school for the season, there will be a general discussion of all subjects read and discussed during the 1910-11 term.

The Telephone Society of Pittsburg

At a recent meeting of the Board of Directors of The Telephone Society of Pittsburg, C. E. Malley was elected Treasurer in place of J. W. Rahde, resigned, and George S. Reinoehl was elected a Director in place of George A. Cary, resigned.

Lawrence County Telephone Society

A meeting of the Lawrence County Telephone Society was held in New Castle, Pa., April 13. A general discussion of telephony formed the programme for the evening.

The Wheeling Telephone Society

Meetings on the third Friday of each month at Room 1119, Schumlbach Building, Wheeling, W. Va.

The Blue Bell Society of Meadville

The Blue Bell Society of Meadville, Pa., has elected I. J. Stitt President and J. R. Williams Secretary. "Magneto Sets" was the subject of the meeting held April 5.

Philadelphia Division

D. J. CLEARY, Division Correspondent

Down Town District. About 3 A. M. on Saturday, April 1, one of our subscribers on Jackson Street, near Broad, discovered two men breaking the glass of a bulk window of a jewelry store directly across the street. The woman hastened to the first floor, called "Spruce 20," and about the time she reached the second floor again the patrol wagon from the 15th and Snyder Avenue station was on the scene and the men were arrested.

It was learned from a Monarch typewriter representative that during one recent week he had been successful in making two sales by telephone, of the latest model machines manufactured by the Monarch Company. He also stated that the manager of the Philadelphia house has instructed the entire sales force to make extensive use of the telephone insofar as selling is concerned.

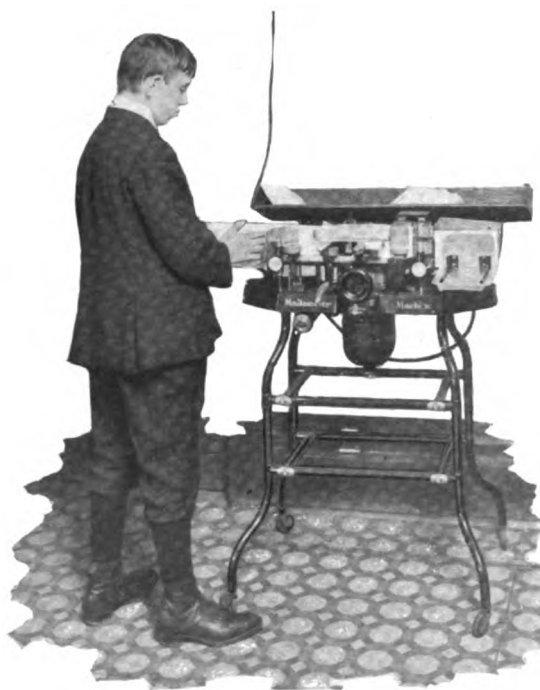
Jenkintown District. The free toll service plan adopted by several Philadelphia department stores for their customers having Bell service is proving of value in this district in su-

perseding obsolete contracts to those of standard rates. That they may get the benefit of this service subscribers who have repeatedly refused to change their old contracts have called the business office requesting a change to our standard rate contract.

E. T. Ellis, Jr., salesman, recently obtained an application for telephone service to include an intercommunicating system of 10 stations to be installed in the residence of George A. Ellasser at Meadowbrook, Pa. The subscriber had previously arranged through his architect to have a private system installed, but by the work of this salesman was induced to change his plans.

By a series of postal cards mailed to Bell subscribers on the first and fifteenth of each month the Tiefenbach Pharmacy, Greenwood Avenue, Jenkintown, is inviting patrons to purchase by telephone; articles thus purchased are delivered at once by special messenger.

A man signing an application for telephone service to be installed in his residence at Glenside, Pa., requested that he be given at least one month's rental free, stating this should be done on account of the very poor service he received in a New York town in 1905. MATHUES



Electric Mailometer Machine Used by the Accounting Department. The Operator Can Close, Seal and Stamp 8,000 Envelopes per Hour

New Harrisburg Telephone Club

Members of the Revenue Accounting Department at Harrisburg gave a dinner Friday evening, March 31, at a local café. Covers were laid for 50 guests. The hall was decorated with potted ferns and flowers, and the color scheme was pink and white. The tables were arranged to form a bell, and the ices were served in bell shape with a miniature desk set as a favor for each guest.

C. E. Booser acted as toastmaster

The principal object of this meeting was to organize a telephone club, in which all the employees of the department would be eligible to membership.

G. B. Detz was elected President and Miss Margaret Kreider Secretary. A committee was then appointed to prepare a Constitution and By-Laws to be presented at a meeting to be held at the call of the President.

New Central Office Buildings

At the present time there are a number of new central office buildings being erected in various parts of the Company's territory. In addition, several buildings are either being remodeled throughout or enlarged, to meet the demands of increasing business.

A partial list of new and remodeled buildings includes the following:

"Preston," Philadelphia—New third story.
"Frankford," Philadelphia—20 foot extension to building.

Westminster and Hagerstown, Md.—Buildings being altered.

Salisbury, Md., and Clarksburg, W. Va.—Plans for new buildings will soon be finished.

Bethlehem and Sunbury, Pa.—New buildings nearing completion.

Harrisburg, Pa.—Extensive alterations being made.

Oak Lane—30-foot extension to building.
Wilkes-Barre, Pa.—Addition to third floor.

Lansdowne, Ardmore and Pittston, Pa.—New buildings being built.

An interesting fact concerning the three last-named central office buildings is that they represent the Company's first attempt to standardize its buildings.

The Bell Telephone Company of Pennsylvania and Associated Companies

Comparative Statement of Telephone Development, January 1, 1911.

State	Area of Our Cos.	Population	Bell Stations
Pennsylvania ..	44,985	7,665,111	366,497
New Jersey ...	5,335	712,086 (1905)	34,184
Delaware	1,960	202,322	11,704
Maryland	9,860	1,294,450	67,282
Virginia	710	53,322	1,031
West Virginia ..	6,973	484,110	21,799
Ohio	5,718	510,616	18,803
	75,541	10,942,017	521,300

The foregoing figures show, in concise form, certain information that employees will frequently find valuable.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

MAY 1, 1911

NO. 9

JOHN C. NOWELL

**Plant Manager, The Bell Telephone Co. of Pennsylvania
and Associated Companies**

The Employee as an Important Factor in Our Relations with the Public

J. H. CROSMAN, JR., Division Manager, Harrisburg

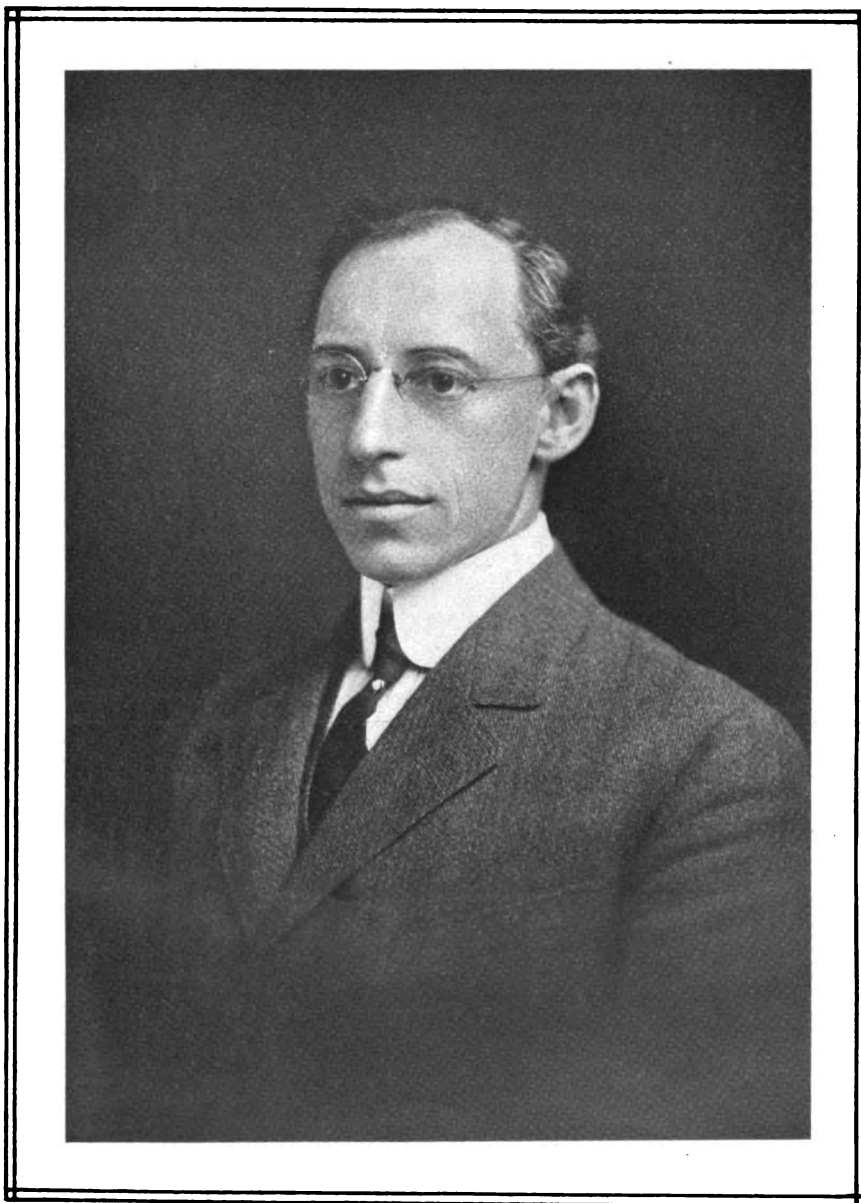
JOHN C. NOWELL, whose photograph is reproduced on this page, was born in Reading, Massachusetts, in 1872.

After attending public schools in Reading and Salem, Massachusetts, Mr. Nowell entered the Massachusetts Institute of Technology, where he studied Electrical Engineering and graduated from that department in June, 1894. Mr. Nowell went immediately to New York City, where he had been offered work as an inspector by E. D. Brown, District Inspector of The American Telephone and Telegraph Company. He worked here about one year on switchboard trouble and equipment work.

Through Mr. Brown's recommendation to Mr. Spencer, who then was developing telephone conditions in Philadelphia, Mr. Nowell was transferred to Philadelphia in July, 1895, with a view to his taking charge of maintenance work. His first position was that of General Wire Chief. The Philadelphia Wire Chiefs and District Inspectors reported to him at this time. Subsequently he was given charge of the installation of subscribers' stations and smaller switchboards. In 1898 Mr. Nowell became Superintendent of Maintenance of The Bell Telephone Company of Philadelphia and of The Delaware and Atlantic Telegraph and Telephone Companies. Later he was made Superintendent of Equipment, and in 1904 was appointed Plant Superintendent of these Companies.

When in 1908 these Companies, together with The Pennsylvania Telephone Company, The Chesapeake and Potomac Telephone Company, The Chesapeake and Potomac Telephone Company of Baltimore City, and The Diamond State Telephone Company, became The Bell Telephone Company of Pennsylvania and Controlled Companies he was made Superintendent of Plant.

Mr. Nowell is now Plant Manager of The Bell Telephone Company of Pennsylvania and Associated Companies, including the above-named Companies and The Central District and Printing Telegraph Company.



THIS, gentlemen, is the subject upon which your President has invited me to address you this evening.

Very gently I have hinted my fear that it would prove too dry an address.

Very delicately I have intimated my willingness to prepare for your entertainment a snappy paper upon some live commercial subject.

All my suggestions have fallen flat with your leaders, and here I am, therefore, come to Baltimore, doomed to preach to you a sermon on the Employee, the Public and the Company! Sounds kind of "chestnutty," doesn't it?

I suppose they think I do not know enough about the telephone business to warrant your listening to anything I might have to say concerning some or other of its specialized features, and feel safest in restricting me to a subject like this in connection with which I can at least do no particular harm.

Well, then, as I have to do this talking, and you have to listen to me, let's get close together and see if we cannot really invest the evening with some live interest after all, and get some new thoughts worth taking away with us.

The Employee! the Public! the Company! Why, when you come to think of it, that's the whole "shooting-match" after it's all said and done!

What else is there, broadly speaking, in this whole proposition of a telephone business?

I can easily see how we could ring in a hundred sub-divisions of each of these three generalizations, if we were so minded, but what particular advantage would result? Why drag in the poor dumb switchboards, the helpless cables, ducts, poles and cross-arms? After all, they do not do things unless we employees make them. Why drag in the Legislature, the Public Service Commission or even the city government for that matter? When it's all said, they are nothing but phases of the Public after all!

(Continued on page 8)

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



U. N. BETHKILL, President
P. L. SPALDING, Second Vice-President and General Manager
W. S. PKIRSOL, Secretary
WALTER BROWN, General Auditor
L. H. KINNARD, Commercial Manager
J. C. NOWELL, Plant Manager

The Chesapeake & Potomac Telephone Company
The Diamond State Telephone Company

Managing Editor, E. H. HAVENS, 1230 Arch Street, Philadelphia, to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum, payable in advance

Vol. VII MAY 1, 1911 No. 9

A Personal Asset

Just a few days ago two officials of a large contracting company sat in an inner office, solemnly studying out the intricacies of an important estimate. The job was big and technical; one that demanded close application and profound thought. Evidently they were having a bad hour of it. Both faces were troubled and frequently one or the other frowned at a newly troublesome detail. The whole routine of the day, it seemed, was waiting for the solution of that problem. Telephone calls were answered from an outer room and visitors temporarily were barred—although at intervals an assistant entered the sanctum and silently laid the card of a caller before the ranking official. As often as he did, a brief shake of the head or a low spoken negative phrase came from the chief. Silently the assistant would then withdraw.

Finally, however, this order of affairs was radically changed. The older official glanced twice at a card which had just been brought in, gazed thoughtfully at his colleague for a moment, pushed aside the papers on his desk, and said: "I'll see Mr. L.—."

The moment the man entered his calling was apparent. He was a *salesman*. There was nothing particularly distinguishing in his appearance; he merely looked clean-cut, capable and greatly concerned with making a sale.

But as he talked he displayed a quality that did not appear on the surface. It was his wholesomeness. It showed in the way he said things, the way he stood, walked and gestured; most of all in the contagious smile that continually lifted the corners of his mouth. First the "chief" caught the mood. His manner began to thaw. He smiled. Then his

associate—a few moments before rather indignant at the interruption—could resist no longer, and chimed into the discussion with an apt little joke.

The salesman didn't stay long. He left probably not more than ten minutes after he came in, smiling, and with an order in his pocket.

"Well," said the older official when the door had closed, "do you see why I let him in?"

"I believe I do." There was an unmistakable note of enthusiasm in the answer. "That chap gave us just what we needed—a mental stimulant. He has a valuable asset there."

That was it exactly. Commercial life at best is all too full of shades and low lights. It takes a real artist to change the picture; but occasionally one meets such a man and his influence is so positively beneficial that the quality seems worthy of cultivation. The first step, of course, is to become saturated with mental sunshine. The next is to keep it constantly on tap. That's about all there is to it.

The man who can create a cheerful atmosphere is a winner—*always*.

The Telephone Voice*

From the Philadelphia *Public Ledger* of April 19, 1911.

A test of whether gentility is a thin veneer or the solid substance is that of the telephone voice. Who has not heard someone rush to the telephone in a fine temper and bark out "Hello! What do you want?" only to modulate suddenly into the soft and honeyed accents of amazing meekness upon learning who it is.

Some people take advantage of the telephone to say rude things anonymously that they would never dare utter face to face. It is so easy to shout bad language into the little black cup of the transmitter; the tiny colander holes at the bottom seem to invite one to strain one's voice. This is especially true of heart-to-heart talks with "Central"—which, of course, is not a pretty girl with her hair in puffs, but an impersonal switchboard dotted with plugs. So you can use heated language till the wires become incandescent, and nobody minds.

It is a difficult art to project one's personality over the telephone—almost as

difficult as it is for the musician to put himself into what he sings or plays and make it "get over" the footlights. The telephone deprives the voice of the speaker of characteristic inflections and nuances, and what was tenderly uttered may sound harsh and grating and be misconstrued.

To some who have infrequent occasion to use the telephone it is a serious business, and their manner betrays their sense of the solemnity of the performance. They talk in measured and steady phrases, and it seems to be something of an ordeal. Others, wholly at their ease, indulge in jocose and familiar language quite as though it were a tete-a-tete conversation.

This leaves out of consideration a large class of telephone users who seemingly respect the telephone too much to approach it closely, and appear to think they can throw their words at the instrument from afar off, like pitching quoits, and still be heard. These persons are almost as exasperating as those who direct their office boys to summon you to your end of the line and then keep you awaiting their royal leisure. But the etiquette of the telephone would demand a separate chapter.

*It is so seldom that this subject is treated in the editorials of our large city dailies that this one is here given in full.

A Nudge

Brown told me of a fellow who got a raise in salary for telling a foolish young woman who called him on the telephone during business hours that he didn't have time to talk to her.

At the same moment it is just this sort of a man that realizes the menace the practice may prove to his business.

The persons who feel that it wouldn't exactly do to tell friends they have no time to talk should consider well. If, by way of illustration, Jane finds it necessary to call John when she knows he is at his daily work, Jane—if she's the right kind—will open the conversation with a frank "Are you busy?" John, in turn, is naturally going to appreciate such frankness, and, if of the proper fibre, will tell the plain truth. Should he say he is busy, the young woman in the case can give him no better evidence of her good sense and general worth than by carefully declining to continue the talk.

This is a proposition that works both ways and fits both sexes. One can readily imagine the pleasure of an employer at hearing feminine as well as masculine assistants excuse themselves from appropriating time that is not theirs to appropriate.

Was it Abe Martin who said: "A word to the wise is unnecessary?"

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Pittsburg District. An aerial cable was recently installed between Carrick and Monongahela City, 15.3 miles long. After the splicing of the cable was completed it was found that the insulation resistance averaged 60 times that required. This was partly due to the careful work of the manufacturer, but equally due to the careful work of the men who spliced the cable. This result was obtained in spite of the fact that at least 5 splices were made in a blinding snow storm, 10 or more in less severe snow storms and a half dozen or more were completed in the rain.

Now and then the sale by telephone campaign strikes a humorous vein, as evidenced by a recent happening in Pittsburg. A department store, evidently attempting to put the plan to a rather difficult test, advertised as a telephone special *canary birds*. Not only the store's advertising manager but other officers were surprised to record the sale of eight chirpers via the Bell.

The following note has been received from an applicant for a position with the Company:

This watch was found by me in your offices, Seventh Avenue, Friday morning. I happened to be in the building looking for stenographic work, and thought it would be of more value to the one who owned and lost it than it is to me, as I have one of my own. If you have anything to offer me in the line of a position I would be glad to hear from you.

Strenuous efforts are being put forth by the East End Local Manager for the installation of No. 2 private branch exchanges. A deal has been made with a real estate agent who makes a practice of building costly residences. It has been the custom of the agent to equip his houses with an independent telephone system costing anywhere from \$40 to \$75, and which is far from satisfactory. According to the terms of our agreement the real estate concern is to install our minimum equipment, the agent guaranteeing the payment of the telephone rental for one year. The supposition is that Bell equipment, once installed, will be used by future tenants.

Butler District. A salesman whose selling activity is confined mostly to the rural prospects has devised a simple plan for encouraging sales of service. He has had typewritten lists prepared of the present subscribers on each rural line. The number of rings is shown opposite each name. For example, Rural Line No. 10, known as the "Freeport Road," has a capacity of 32 subscribers. The salesman knows by glancing at his list that rings Nos. 1, 3, 5 and 14 are occupied. So when he goes along the highway looking for a sale he has the choice of rings 2, 3, 4, and so on, to work from. This salesman often gives similar lists to prospects. They see at a glance that their neighbors are on the line and that in order to keep abreast with them a Bell telephone should be installed. The placing of the complete argument before the eyes of the prospect has an instantaneous effect that often results in a sale. STEWART

Greensburg District. The Windber Telephone Company, one of our connecting companies operating exchanges at Windber and Dunlo, Pa., is contemplating a complete reconstruction of its plant. The District Plant Engineer at Greensburg recently went to Dunlo to recommend additional facilities, as well as improvements to the old equipment.

**A Well Equipped
Building in the
Uniontown, Pa.
District**

The Goff building, which was opened to the public at Clarksburg, West Virginia, lately, within a very short time will contain about 125 Bell telephones. The Plant department has already installed over 50 telephones in the various offices. Our service enters the building by means of a 200 pair cable. The work of building the Goff structure was started in the spring of 1909, and its entire cost is said to be in the neighborhood of \$225,000. The building, one of the handsomest in the southwestern extremity of our territory, is on the corner of Main and Court Streets, overlooking the very heart of the city.



The Plant Department has completed the setting of poles and the stringing of cable for the Beaverdale, Pa., exchange, which was recently opened with about 70 new stations. The exchange serves subscribers in the Pennsylvania towns of Beaverdale, Lloydell and Onnallinda. All are in the vicinity of Johnstown.

We have been extremely successful in our canvassing for new subscribers in Conemaugh, a suburb of Johnstown. Seventy-five applications have been taken since the latter part of March.

The Plant Department has recently completed the setting of 100 new poles in Cresson, Pa.

Recent private branch exchange installations in Greensburg include the following:

Firm Name.	Trunks.	Stations.
A. E. Troutman Co.	2	6
Tribune-Press Co.	2	4

The contract with the Tribune-Press Company supersedes a contract for free district service at an obsolete rate. The Plant Department is now working on the installation of private branch exchange service for the John W. Pollins Company of Greensburg.

The Indiana Street Railway Company has removed 7 opposition telephones and replaced them with Bell instruments. The Railway Company furnished a special car for the use of our installers.

In Indiana, Pa., during the past month, at least a dozen opposition telephones have been replaced by Bell service. Our service is becoming very popular at this point and our number of stations is growing rapidly.

During "moving season" in Indiana 25 telephones were removed from one location to another and but 2 telephones were ordered out as a result of the subscribers moving. HUGUS

New Castle District. A switchboard is being installed at Conneautville, Pa., preparatory to the opening of an exchange at that point. The surrounding territory is sublet to the Summit In-

dependent Telephone Company, and its lines will be brought into the Conneautville exchange on the rural line basis.

The Pennsylvania Railroad Company officials have signed applications covering the installation of 44 new stations to be connected with our Erie, Pa., exchange. All of these stations will be assigned to one panel in the Erie switchboard and wired in on 1 position of the board.

A Plan "A" rural agreement has been signed with the Jefferson Township Association of Mercer County, Pa. This adds 13 subscribers to our exchange at Sharpville, Pa.

The Brush Creek Valley Telephone Company has signed a 5-year contract with our Company. The connecting company has 330 subscribers and connects with our Rochester, Pa., exchange and operates another exchange at Unionville, Pa. HARPER

Uniontown District. Extensive additions have been made to the Plant at Fairmont, W. Va. A construction gang of 14 men has been busy since early in February. Among other work a total of 9,950 feet of new cable has been strung and 300 poles set. Fairmont showed a net gain last year of 536 stations and the Plant Department is now holding about 75 uncompleted "new connection" orders.

A Washington, Pa., reporter recently gave considerable newspaper publicity to the intercommunicating system which the Company installed for the new Citizens' National Bank. The equipment comprises 8 stations and 2 trunk lines, and is the first system of this kind to be installed in Washington.

A new common battery equipment is to be installed at Charleroi, Pa. It will consist of a No. 10 board with 11 positions and accommodations for 1,500 lines. The new quarters for operators and new terminal rooms will occupy the entire second floor of the Charleroi Savings and Trust Building. CAHOON.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

As a rule the net results of work accomplished at "exhibits" planned and carried out in various parts of the Company's territory are not immediately discernible. At three recent exhibits in this division, however (at Hazleton, Wilkes-Barre District, and Reading and Lebanon, Reading District), a remarkably large amount of service has been sold. The "quick" results from the work done in these three exhibition booths are so interesting that a detailed description of the methods employed is contemplated.

At the Reading exhibit, for instance, in conjunction with the extraordinarily successful Reading Industrial Exposition, held March 14-23, the Company's representatives obtained applications totaling approximately \$1,000 in annual revenue, and first-class prospects for over 100 additional stations. At Lebanon similarly satisfactory work was done; while at Hazleton the splendid success of the Reading exhibit, considering the comparative size of the two cities, was almost, if not entirely, equaled.



Bell Telephone Exhibit at the Lebanon, Pa., Second Annual Business Show conducted by the Board of Trade, February 23, 24 and 25, at the Market House

Allentown District. While an opposition telephone company's salesman was soliciting a prospect in Emaus, Pa., a representative of our rural company at this point asked the opposition salesman to excuse him for interrupting his conversation as he had important business with the gentleman with whom he had been talking. He requested the prospect to step into another room, and at once obtained his application for Bell service. The subscriber then told the opposition salesman that he had just signed for Bell service and did not care to entertain his proposition.

The convenience afforded the public by telephoning telegrams and cablegrams and by having the charges rendered by our Company is appreciated by a Catasauqua subscriber, who stated that heretofore he found it necessary to go to the Western Union Telegraph Company's office in order to pay telegram charges. Since this innovation has been placed in effect cablegrams to Peking, China, and points in the South American republics frequently have been telephoned to the Western Union Telegraph Company's office at Catasauqua.

The value of leased toll lines to a department store is shown by the number of calls handled at Hess Brothers', Allentown, Pa., over their leased line between Bethlehem and Allentown during the month of March, 1911:

Calls from Bethlehem	736
Calls to Bethlehem	291
Total	1,027

This is an increase of 173 calls over the month of February.

The Plant Department made a speed record by installing a No. 4 private branch exchange board at the office of the United Textile Corporation, Allentown National Bank Building, last week. On Wednesday morning the Commercial Department received a request for moving several telephones in the office of this corporation. Upon investigation it was found that a No. 4 switchboard was needed to handle the business, and on account of the firm rearranging its offices the work would have to be completed by the following Monday morning. The Plant officials were consulted and they advised that it could be done. The application was signed and line orders issued promptly at 3 o'clock Wednesday, and Saturday noon the work was reported O. K. The Company received much praise for its prompt action.

In connection with the recent publicity of the reversed message plan of shopping by telephone at Farr Brothers' Modern Shoe Department Store, Allentown, Pa., the Commercial Department arranged a telephone display for this firm's window, consisting of several portable desk stands attractively placed among the shoes, with large signs announcing that the store had installed a private branch exchange system and would pay all toll charges of customers ordering by telephone.

Reading District. A prominent merchant and Bell subscriber in Shamokin upon redecorating his display windows called a Bell salesman's attention to them, at the same time asking him if he had any suggestions to offer. The salesman replied that there was only one thing lacking and that was a card reading "Prompt Attention Given to Bell Telephone Orders." This seemed to strike the merchant's fancy. He immediately placed a card with the above inscription in the window, together with a portable desk set to emphasize the suggestion.

A prominent jeweler in Shamokin, upon being solicited for Bell service, claimed that he had no use whatever for a telephone in his business. After considerable talk and persuasion on the part of the salesman he finally signed an application for service. Three weeks after his telephone was installed he met the salesman on the street, and, shaking hands with him, said: "Young man, you certainly knew my business better than I did myself. I am receiving all kinds of calls on that telephone, and they mean business for me, too."

A Lebanon salesman learned that an old opposition subscriber was disgusted with his service. He immediately called on the man and with very little effort induced him to apply for the Company's service. The prospect then went a step farther and voluntarily ordered out his opposition service.

Scranton District. At the time of a recent mine disaster in Scranton one of the Company's prominent subscribers called the Commercial Department and requested that we locate a government physician on a matter of importance. Through the efforts of the Traffic Department this person was summoned from the interior of the mines by a messenger and the message delivered. The subscriber afterwards called and thanked us for the prompt and courteous treatment received.

The Western Electric Company has added 3 additional positions to the switchboard in Carbondale, to take care of the additional busi-

ness which has been obtained within the past few months.

During the Pancoast Mine accident at Throop, Pa., one of the officials of the colliery called the Traffic Department and stated that while the telephone as used by both the coal company and the Government Rescuing Corps was a very important factor in their work, they never received better or prompter service than at Scranton.



Bell Telephone Exhibit at the Reading, Pa., First Industrial Exposition, held in the Auditorium, February 14 to 25. Twenty-nine orders for Bell service were obtained, including one branch exchange

Wilkes-Barre District. A new subscriber at Berwick is so well pleased with her service that she telephoned in the names of three of her friends whom she suggested that we call upon. A salesman succeeded in obtaining applications from each of the three prospects.

The Lime Ridge Rural Line Club has been formed to develop the territory lying between Bloomsburg and Berwick. Seven stations will be installed immediately. The line will connect with the Berwick exchange.

Williamsport District. The Middlecreek Valley Telephone Company, a sub-licensee operating exchanges at Selinsgrove and Middleburg, Snyder County, has been making phenomenal strides in the way of obtaining new business. It has already connected 202 subscribers in the last 8 months in a territory heretofore covered exclusively by opposition lines. The stockholders are native Snyder County people, and the directors and officers insist on maintaining the reputation of the company by providing a high grade of service. The company is still in its infancy and it is conservatively estimated that more than 600 telephones will be installed in less than 3 years. It is building only the most substantial lines. Long distance connections are made through our Sunbury exchange and local connections with the Buffalo Valley and the Mahanoy and Mahontongo Telephone Companies.

The Brookside and White Pine Telephone Company has extended its present system to Waterville, a distance of 12 miles; run 2 circuits and signed 28 subscribers. Prior to this time Waterville has never had telephone service.

Baltimore Division

There arrived at the port of Baltimore, April 13, such a cargo as has no equal in the annals of the port. It was brought in by the schooner Levi B. Phillips, Captain Tyler. It consisted of telephones, switchboards and attachments formerly used by the Southern Telephone Company of Norfolk. The cargo was loaded at that port and it is said it will be disposed of here as junk.

A contract for a private branch exchange has been closed with Armstrong, Cator & Co., one of the largest millinery houses south of New York. It has at the present time one of the old flat rate telephones with 2 extensions; in addition to this it has a monitor switchboard, an auxiliary line and 5 stations. This service will be superseded by a private branch exchange of 4 trunks and 50 stations. A "Maryland" private branch exchange will be discontinued. The application was obtained by F. S. Whitman, Contract Manager.

This self-explanatory letter of appreciation has been addressed to the Company by a prominent Baltimore stationery house:

It is with great pleasure that I commend your Company for promptness in locating our salesman, W. D. Ford, last Thursday, when we had only the most meagre information to give your toll operator.

At 3 P. M. we asked your operator to locate Mr. Ford, stating that he was last heard from at Exmore, Va., where he boarded a train bound north. We suggested that you might try the hotels and banks in several towns on the peninsula, but that we had no definite idea as to what direction he was taking, nor what towns he would visit. Shortly before 5 o'clock connection was made, your Company having located Mr. Ford at Lewes, Del.

We have no objection to your using our name in this instance.

Yours truly,

THE FALCONER COMPANY.

C. M. FALCONER, Sales Manager.

Havre de Grace District. During the month of March excellent results were obtained in this district through a liberal use of the "Suggestion Books," applications for 10 stations having been brought in on tips from employees of the Plant Department.

The new Commercial, Traffic and Plant quarters recently leased at this point in the handsome new Post Office Building at Union Avenue and Franklin Street are now occupied by the Commercial and Plant Departments, and arrangements for the removal of the central office are well under way. The district is composed of Harford County, formerly Bel Air district, and Cecil and Kent Counties, formerly a part of Wilmington, Del., district, in the Atlantic Coast Division.

Among the recent rural lines obtained are 2 for 13 stations on Quaker Neck, Kent County, to be connected with the Chestertown Central Office. This represents good work on the part of the Local Agent, as the construction is unusually heavy, and is likewise another illustration of the ever-increasing value of Bell service to the farmer.

A contract for 10 stations to be connected with the Fork central office has been closed; also, one for 6 stations to be connected with the Bel Air Central Office.

The work of replacing sub-station sets at Bel Air in connection with the cut-over from mag-

neto to common battery service has been completed; the new switchboard is about ready and actual cut-over will be made the latter part of this month. This improvement is greatly appreciated by our subscribers, and words of commendation are often being heard.

GERBER

During the first 6 days of April the Plant Department at Frederick installed 49 new telephones, of which fifty per cent. were within the county, made 6 outside "moves," and disconnected 6 telephones with the regular force of 2 installers, a loop gang of 3 men, and occasional assistance from 2 combination men.

The Commercial Department at Frederick has been turning in an average of 20 new orders a week for the past 3 weeks—rather satisfactory gains for this vicinity.

The Inwood Telephone Company held its annual meeting at Inwood, W. Va., and elected officers for the coming year. The company was organized 5 years ago and now has connected about 70 stations, covering all the rural territory near Inwood and Gerardstown. The duplicate company disconnected approximately 30 stations during the last 6 months on account of inefficient service. Inwood has a population of 125 inhabitants and lies in the famous apple region of the Cumberland Valley. Apples are shipped from this point to the amount of 168,000 bushels a year. The telephone has been a great factor in the development of this territory.

A fire in Hagerstown recently destroyed 3 residences and all their contents with the exception of 2 Bell telephones which were pulled off the walls by an employee of the Company just before the buildings collapsed.

The following letter has been received from an official of the first Plan "A" rural line constructed in Frederick County, Md.:

In reply to your request for information I will say, "We" as a company are more than pleased with our experiment. The fact that our line is the first in this county built by amateurs and receives the proud distinction of being one of the best lines on the exchange is conclusive evidence that rural inhabitants may have the convenience of telephone service at a minimum of rental fees if they are not afraid to throw off their coats and go after it. Our line is giving us the best of service and everybody is well pleased.

In conclusion I will say your treatment toward us has been generous and prices consistent with good material.

Free Toll Service for More Department Store Patrons

The following subscribers have taken up the idea of a "Telephone Suggestion" or "Telephone Special," as originated in the Strawbridge and Clothier advertisement in the Philadelphia papers:

Joseph Horn Co., department store, Pittsburg.
Wm. F. Gable & Co., department store, Altoona.

Farr Brothers, shoe store, Allentown.

Hager Brothers, department store, Lancaster.

All of these firms now include a new suggestion in their daily advertisements.

In this connection it may be said that in the rapidly increasing use of the Company's toll lines there is a big opportunity for rural salesmen. Various firms are advertising free toll service to persons using the wires to place orders. This privilege in itself should prove a forceful argument in favor of rural telephone service.

Washington Division

R. G. HUNT, Division Correspondent

A local steamboat company expresses its idea of telephone directory advertising value in these words:

We consider our advertisement in the telephone directory, on personal investigation, to be the most effective and to give the greatest return for the cost of any we have now in effect.

Commenting upon the new Belasco play, "The Woman," which was given its *premiere* at the New National Theatre in Washington, April 17, the Washington *Times* said: "The play is unique in that the action of the play revolves around the telephone, and the heroine of the play is one of the young women we call 'Central.' The play shows the important place the telephone takes in the life of to-day, and that it is often a factor in controlling and dominating the destinies of men and women. As the girl in the play puts it: 'One of the big central telephone stations is the world all boiled down and spread out on the switchboard, and right on that board the thoughts of thousands meet.'"

The Crane Company, one of Washington's leading printing establishments, has made a new departure in all of its newspaper advertising. It makes a practice of omitting its address altogether, and publishes simply its telephone number, thus making a bid to the public for "Orders by Telephone."

An application for a private branch exchange with 2 trunks and 33 stations has recently been obtained from the Riverside Apartment House on New York Avenue.

Applications for private branch exchanges No. 2 have been received from John E. Reyburn, Mayor of Philadelphia, for his Washington residence, and Mrs. L. Bishop Grandin. Mr. Reyburn has signed for 5 stations and Mrs. Grandin for 6. The residence of the latter, which has just been completed, is one of the finest in Washington. It is built of white marble and stands on a prominent site just off Dupont Circle in the fashionable residence section.

Mr. B, a local subscriber, states that the principal cause of "wrong number" trouble is the subscriber's propensity to transpose the digits of a number. Mr. B has taken the trouble to study out for himself many of the Company's practices, and he says that with the knowledge he has thus obtained he usually is justified in taking the Company's part whenever he meets a disgruntled fellow subscriber.

The Traffic Department reports that on the first of April 371 calls for "Mr. Bear," and others, were intercepted. Mr. Baker, Superintendent of the Zoological Park, subsequently expressed thanks for the annoyance we had saved his office, saying that not one call of the April fool kind was received at the Zoo.

An application for a switchboard with 2 trunks and 5 stations has just been obtained from the President's Economy and Efficiency Commission. This commission has recently been organized under Act of Congress for the purpose of commercializing the conduct of business in the government departments and placing them on a more economical basis. For this reason it is peculiarly significant that one of their first acts was to provide for private branch exchange service.

Atlantic City—The Playground of America

ATLANTIC CITY'S "Easter parade," which has become a carnival of national fame, has passed on to take its usual prominent place in the year's history of the resort. Its effect, however, is enduring.

To the casual visitor this annual display of millinery and up-to-date raiment of bright color and novel design, the ceaseless tramp of the hundred thousand joyous participants as they wind their way along the broad esplanade, beginning everywhere and ending nowhere, the sea of bright, happy faces, the music of laughter mingling with the roar of the ocean, all enhanced by the radiance of a smiling sun, is a thing of beauty, but nothing more.

From the point of view of the "year rounder," to the hotel man and the merchant it has a vastly important significance. To them it is the thermometer of the resort's popularity, which, after all, is the real, vital asset of the place. After the comparatively sluggish winter season the Easter pageant is a sort of a trial heat to determine the general fitness of things. It is a test of the efficacy of the advertising campaign—an effective means of showing the weak points as well as the strong ones. The size and character of the throngs indicate what changes it will be necessary to make to properly cater to the summer crowds and to what extent they should be made.

These things and many more are clearly brought out in the Easter try-out, for it should be remembered that the great Easter demonstration, as well as many of the other salient features of the resort, are not heirlooms. They did not just naturally happen. They are the result of exhaustive study and carefully executed plans. It is to such work that a number of civic bodies are committed, and it has been developed to such an extent here that it has almost reached the proportions of a science—the "Science of Pleasure Resort Building." Among the most prominent of these bodies are the Board of Trade, the Business Men's League and the Hotelmen's Association, which jointly operate one of the largest publicity bureaus in the country.

The rapid growth of the city dates from the organization of these bodies. They have indeed succeeded in making two blades of grass grow where but one grew before.

The city was founded in 1854, and the history from that time up to 1890 was a series of hardships and drawbacks such as might be expected in developing a ten-mile stretch of meadow land, the only dry spots being a few scattered sand dunes blown up by the fierce northeast gales, serving as the foundation of the several shacks occupied by a few native fishermen. From this state the town slowly dragged along, making some improvements but little real progress. It was not "raised," it simply "grewed." This slow, natural growth did not satisfy some of the more enthusiastic boomers, and they set about organizing the previously named bodies to develop the island. Just exactly what develop meant and to what extent it could be carried they did not know, but they did develop a number of remarkable enterprises, and are still developing.

The natural advantages of the island and the curative properties of the salt air, combined with the enthusiasm of these men, have wrought wonders. Hotels of a high standard have been built, first-class transportation facilities have been provided, and the artisan and

craftsman have conspired to enhance the charms which Nature has so lavishly bestowed until Atlantic City stands out paramount as the playground of America.

"The boardwalk," which is not a boardwalk, nor a street, nor an avenue, but something for the lack of a better name called a boardwalk, is in its present form a distinctly local creation. There is but one Atlantic City and but one boardwalk. This promenade, which was evolved from a *board* walk and has passed through the various stages of evolution, was commenced in 1872 and has never been completed, although it is now ten miles in length, extending the entire length of Absecon Island, through Atlantic City, Ventnor, Margate City and Longport. It is constantly being widened and improved, and is now one hundred feet wide in the central portions of the city. It has already cost nearly a million dollars and is illuminated by over a million lights. The real development of the city dates from the dedication of this structure in one of its evolved forms in 1896 and has proceeded with remarkable rapidity until Atlantic City is no longer regarded as a mere summer resort, but a thriving city possessing unusual facilities and attractions as a health and pleasure resort throughout the entire year.

The population in 1896 was 18,500; in 1900, 27,838, while the 1910 census gives it as 46,888—an increase of 70 per cent. in ten years. These figures include only "all-year" inhabitants. The city proper covers an area of 3,066 acres, which is increased to 5,575 acres by combining Ventnor and Longport on the south. These, while separate municipalities, are in every other respect a part of Atlantic City. There were nearly 11,000 buildings in this area on January 1, 1911, an increase of 15 per cent. over 1910.

In all, there are over 900 hotels, with capacities ranging from 25 to 1,200 guests. Thirty of these accommodate upward of 500 guests each, and together they annually enter-

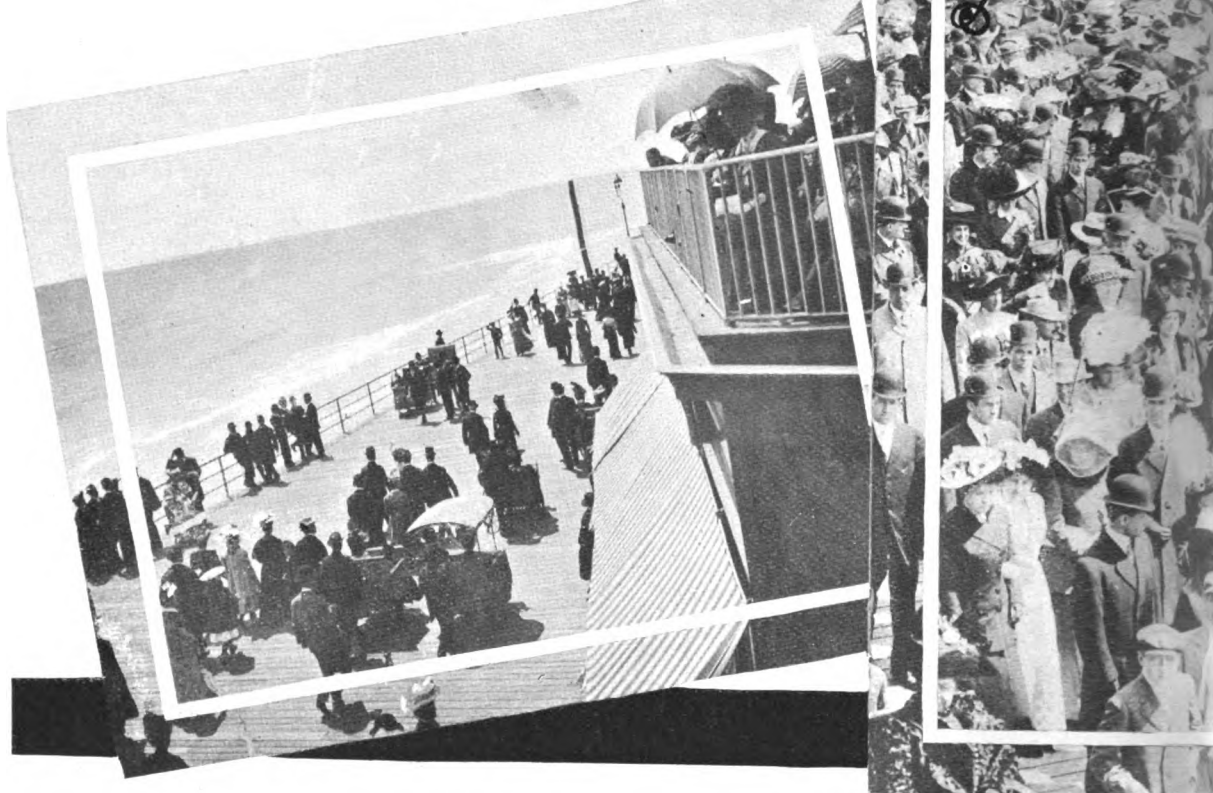
tain 20,000,000 guests from all parts of the world. To satisfy all tastes and requirements there are suites for \$20 and more a day or single rooms for \$2 for the same period. The permanent population is thus variously augmented by 30,000 in December to 250,000 in August.

This rapid rise and fall in population indicates to some extent the unique and difficult telephone problem presented. Of a total of 7,500 telephone stations in service, about 3,500 are connected with private branch exchanges in the hotels. The traffic from these (hotel) stations is as varied in character as in volume. The Company's building at Pacific and Mt. Vernon Avenues, occupied by the Commercial, Plant and Traffic Departments, was completed in 1900. The switchboard now contains 27 local positions with a capacity of 3,500 lines. A toll board of 20 operator positions and 4 recording positions is equipped with 54 trunks. The toll curve, showing graphically the toll traffic handled through their board, is a most interesting study, showing a variation of 170 per cent. between January and August.

While this serves to indicate to some extent the remarkable growth of the city, a better idea of the progress may be gained by reference to some figures taken from the Real Estate Assessor's books. In 1868 the total ratables were \$442,320; in 1910 these had increased to \$66,068,119. Year after year the assessments have shown unusual gains; the first decade after 1868 added half a million to the ratables; the next, two million; the third, nine million, and during the fourth, or from 1898 to 1908, the resort's strides were gigantic, nearly forty million dollars being gained during that period. During the first three years of the present decade twelve million more have been added, over three million dollars of which was expended in the construction of 1,148 new buildings during 1910.

The remarkable feature in connection with

Atlantic City Boardwalk



Parade-Easter, 1911



Center photo by courtesy "North American"

this tremendous increase is that it has been general throughout the city. In cities, as a rule, where valuations for the entire municipality are constantly growing, some sections rise at the expense of others. With the advent of the foreign element in one section the ratables show a decrease, while a corresponding gain is registered in the newer section. In Atlantic City there has not been one instance where a decrease in assessment has been made. Even in the populous "back-town" section, where the working classes reside, the increase is maintained. A lot in the center of this section which in 1887 was valued at \$1,000 was sold recently for \$7,500—seven and one-half times its original value. The most startling increases are, of course, to be found on the beach front. For example, a beach front hotel that was valued at \$15,000 in 1887 is now assessed for \$447,300.

This rate of increase is by no means confined to the corporate limits of Atlantic City, but extends into the sister cities of Ventnor and Margate. Cottages of the highest order are being built in these places, their values ranging from \$10,000 to \$40,000. Margate City has within the last two years been literally transformed from a low marshy waste into a beautiful park with wide avenues, along which have been erected several magnificent villas.

Atlantic City is fast becoming the "Convention City of the East." Through the efforts of the publicity bureau, mentioned above, over 300 conventions were held here in 1910, and a greater number is scheduled for the current year. The delegations attending these conventions range from 50 to 250,000, the latter figure being the estimate of the expected crowd during the national reunion of the B. P. O. Elks, to be held during July of this year. The International Convention of Christian Endeavor Societies, with delegates from all parts of the world, will also be held here during the same month. Practically all visitors of this

class are heavy toll and long distance telephone users.

Abundant facilities for entertaining such large bodies are provided. On the Million Dollar Pier, where many of these conventions are held, a telephone switchboard of 200-line capacity has been installed to provide for the service required by these conventions. Several installations varying from 25 to 125 stations are made each year. As these stations are usually installed in exhibition booths where machinery and electrical apparatus is shown they possess an advertising value of great importance.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Bridgeton Sub-District. "If it were necessary I would part with some of the furniture in my house before I would let my Bell telephone go," was the voluntary statement made by a Bridgeton subscriber when paying his telephone bill.

One night recently a barn at Hurfville, N. J., took fire. The fire soon spread to an adjoining building and the townspeople, fearing the destruction of all property in that vicinity, decided to summon help from Pitman, three miles distant. The Bell telephone was at once brought into use. The Pitman fire department quickly responded, and with its help the fire was confined to three barns.

Camden District. W. Waterall & Co., Camden, N. J., paint manufacturers, have signed an application for a No. 1 private branch exchange with 2 trunks and 6 stations. This supersedes a 10-mile radius contract and replaces opposition service.

Doylestown District. The Gardenville Rural Telephone Company, which has been in service for about 2 years with thirty subscribers, is now completing the erection of about 3 additional

miles of line which is to connect 8 new subscribers.

For the second time within a year the property of H. Y. Leatherman in Plumstead Township was saved from total destruction by fire by the prompt use of the telephone in calling the assistance of neighbors and preventing a loss of several thousand dollars. As soon as the fire was discovered a call was sent out through the neighborhood, and people flocked to the scene of the fire, rendering valuable aid, and preventing serious loss. Mr. Leatherman is a subscriber of the Pipersville Rural Telephone Company.

The interest taken in rural telephone lines is evinced by the following statement of a rural line subscriber: "I started out at 6.30 A. M. to find trouble on our line and kept at it until noon before I found the trouble. When the telephone cannot be used it seems as though we were cut off from the entire world." HENNESSY

Norristown District. A contract was recently closed with B. E. Block & Bros., a large Norristown installment house, superseding it from a direct line to a direct line monitor switchboard with 5 stations.

A contract for eleven stations has just been closed with the Towamencin Rural Telephone Club to be connected with the Lansdale exchange. BEERER

Trenton District. An application has recently been obtained for the installation of a private branch exchange system at the Trenton plant of the American Bridge Company. The system at present will consist of 8 stations, and additional stations will be installed later, bringing the size of the branch up to 12 or 15 stations at an early date.

This sale is noteworthy as it supplants a private interior system. The chief argument for the introduction of the Bell system was the heavy annual depreciation charges on the private system, which the subscriber will not have to bear under the terms of our contract.

A recent study of the different exchanges of the Trenton District showing the comparative growth during the last 2 years of Bell and opposition development reveals some startling facts.

During this period the Bell development has increased 25 per cent., while the opposition shows an increase of but 1 per cent. In many exchanges the opposition company shows a loss, whereas, in all points covered by the study of the Trenton District, the Bell shows a substantial growth.

Kaufman's Department Store, of Trenton, is one of the latest houses to feature shopping by telephone over the Company's toll lines. FAIRCHILD

Wilmington District. The American Bridge Company, at Edgemoor, Del., has signed for a No. 1 private branch exchange which supersedes an obsolete contract. The new equipment means a gain of 10 stations and \$160 in annual revenue.

One of the oldest local resident subscribers to opposition service has signed for direct line service with this Company. This sale was made by Salesman McCaffrey after repeated efforts, and will influence 2 more members of the family to make a change.

After nearly 4 years' soliciting the pastor of a prominent church in Newark, Delaware, was persuaded to have telephone service installed in his residence. The salesman met him a few days after the installation had been made and he said the second message sent was an alarm of fire, one of his neighbor's houses being on fire.

Since then Newark has had an epidemic of fires, 5 occurring within a week; 3 of the alarms were given by telephone. CHAMBERS

The Employee as an Important Factor in Our Relations with the Public

(Continued from page 1)

I wonder how many of our shareholders could operate, turn for turn, at one of Baltimore's big multiple common battery switchboards! Have you ever met any considerable number of our shareholders who could properly wipe a cable joint or even install a sub-station set?

If you have, gentlemen, and I sincerely hope you have, they hold these accomplishments not because of their shareholding, but because of their stated employment at the business, and their then being shareholders in addition. Of the strong desirability of this sort of "dual connection" I shall speak presently. The point just now is, do the shareholders truly constitute the Company? One might, in the narrowest possible sense of the inquiry, answer "yes," but in the "going" sense, "not much!"

But the Company! Ah, here is a chance I really believe for some profitable thinking and perhaps a little profitable talking.

We have been told so many times without number what our Company is, that I venture to re-define it to-night with fear and trembling lest you start to yawn in your places! However, here goes.

In the first place there are the investors who put up the capital to establish and carry on the business. These are called the shareholders or the bond-holders as the case may be, but as in a practical sense the bond-holders are really only a lot of wealthy people who lend money to the shareholders in return for a mortgage upon the property or a lien of some kind upon the business, we may dismiss them without further consideration.

Somebody may say, "That's enough said. When you name the shareholders you have named the Company." Is that so? Let us see.

Do you happen to know any of our shareholders that could "shoot trouble" in good shape?

Well, then, there is the Board of Directors. Suppose we add them to the shareholders and see whether that makes a Telephone Company. Manifestly you cannot stop there. All right, we will once more add to the sum of the shareholders and the Board of Directors the higher officials, chosen by the Directors for the purpose of managing the Company. That sounded perfectly natural, didn't it? Managing *what*, did I say? Why, managing *the Company*! Now you and I are not expected to believe that the Directors elect and employ a long list of highly specialized officials for the purpose of managing themselves, that is the Directors and the shareholders. Certainly not. So it seems, then, that there must be something else reckoned into this proposition in order to make up the Company. Truly so! What can it be other than ourselves, the Employees, that constitutes this elusive equation? This is the way I like to construe it, at any rate, and I think I can show you that it pays all concerned to have us take that attitude.

We—you and I—are part and parcel of the Company just as surely and just as necessarily, that is to say, *the Employees* are just as necessarily a part of the Company as are its shareholders, its Directors, or its officers.

There is, however, one essential point for us to understand thoroughly.

The shareholder has a vested interest. He takes a step somewhat similar to matrimony when he puts his money into the securities of

the Company. He is in it "for better or worse." He can sell out if he chooses, and someone else will buy his interest, but he cannot be put out—not even for "obsolescence!"—a word we hear so much about these days. Officers and employees alike, however, share this necessity that they must prove good officers and good employees in order to expect to retain their relation to the Company.

And when you come right down to it, I for one believe we have all the best of it when we compare our Company relationship to that of the mere shareholder. He indeed is limited in his enjoyment of the Company, to his privilege to attend its annual and special meetings of shareholders, his right to cast his ballot, or more frequently to forward his proxy to some other person to vote for him on account of his inability to attend, and to his receiving each dividend day a small return in the way of earnings upon his investment.

On the other hand, look for a moment at our opportunities for enjoyment in our relations to the Company. Here we are actively engaged in promoting and carrying forward the most remarkable, and one of the most interesting and fascinating businesses of all times! We have for associates bright men and women, all filled as we are with a pride of occupation, a real appreciation of the tone and spirit of our splendid work!

We see an endless picture of progress, change, improvement and advancement written into the history of our business, and we might almost say, into the history of our country; and we, each one of us, have played our own real part in its making!

We have congenial occupation, too, affording us a remunerative field for daily labor—in itself, gentlemen, a priceless consideration!

Do I exaggerate then when I say that our privileges exceed tenfold those of the mere shareholders of our Company's securities?

If I have succeeded in making point number one, the fact that a company's employees are very emphatically a part of the Company, and its complement in our particular case, that this relationship is filled with opportunities for pride and enjoyment, let me pass on to the next point I want to make, and that is to show you how utterly dependent the Company is in its relations with the Public, upon the relations its Employees themselves maintain with that same Public. It is, of course, true that there is a direct association between the shareholders and the Public.

If, for example, the shareholders insisted upon too generous a return upon their investment, the Public would, in its own way, say something to them about it. It is also true that there are certain direct associations between the Directors and the higher officers and the Public. Let us admit these without argument and give them a very high rating for importance—but when all that is said and admitted, how easy it is to see and appreciate that where these gentlemen have one active touch with the Public, we, the big army of Employees, have and maintain a hundred thousand!

The most polished, considerate, courteous and high-toned Directors and officers it is possible to conceive of, backed by rude, ignorant, shiftless or dishonest Employees would be powerless to win or long hold the approval and support of the Public. No, gentlemen, the real success, the permanent popularity and enduring character of our business depends far more than upon any other one thing, on the way you and I and our fellow Employees get along comfortably and

easily with our customers and critics, the American Public.

Now what I want to do is first to bring squarely to your attention these two important points, and then develop to a brief extent some of the collateral matters that constitute the thoughts I said I hoped we might take home with us as a result of our evening's work.

First, then, to recapitulate, we must assume that we as Employees hold important and valuable memberships in the Company—memberships always subject to our effective and useful handling of them. Second, that the Public being the customers of the Company and our relations with those customers constituting so unquestionably the lion's share of the Company's contact with them, we in a great measure hold in our own hands the immediate degree of our Company's success, as we win and maintain successfully, or otherwise, agreeable and satisfactory relations with the Public!

If these considerations are sound, it follows that to no small extent do we in turn achieve our personal value to our Company as a direct result of our abilities along this line. If this in turn is true, we are all in a large sense, salesmen for the Company.

Let us see how and in what ways then we may improve ourselves in this direction and so advance our values to the Company. You remember Saint Paul it was who pointed out the three prime requisites to successful religious living. Faith, Hope and Charity. Now what we want to do is to dig up the three equivalents to these in our daily lives as representatives of our Company with the Public. The first is, I should say, *Courtesy*. Politeness—that wonderful oil that has smoothed more troubled waters than anything else in the wide world! For the second I should choose *Patience*. Patience the close associate and constant comrade of politeness. And thirdly, let me suggest *Efficiency*.

Here we have them, don't you think?

Courtesy coupled with tact!

Patience founded upon sympathetic understanding of the customer's point of view, and

Efficiency, based upon a sound knowledge of our organization, our routines, our methods and practices, and the self-control and initiative needed to make them serve their intended purposes! Let us each one take this deeply home. Are we constantly courteous? Are we always polite? I don't mean courteous when we feel fine and dandy or polite when nothing has ruffled us! But I mean exactly what I say, are we *constantly* courteous; are we *always* polite?

Now we can be if we will only try hard enough.

Again, are we *always* patient? Do we *always* guide our attitude, the expressions of our face, the tones of our voice by the sympathetic knowledge of the customer's limited point of view? To us the reason is perhaps self-evident. To the complaining or inquiring customer it seems mysterious, perhaps even unreasonable. Do we show by our good manners *always* a due appreciation of his lack of knowledge of what is to us perhaps the everyday "why and because" of our very business? And once more, are we *always* efficient? Not just sometimes when we have an inspiration or feel like a fighting cock perhaps, but *always*, every day, every hour of every day, are we making ourselves count, and count strongly, for all we have in us?

Now I say let's get this point of view. We are not working for a Company. We are a *part* of our Company. If anybody says to you, "Hello, Bill, who are you working for these days?" You reply hereafter, "I'm in the Bell

Telephone Company now! and I'm working for us!"

Get the notion that as you do or do not do well in each step of your routine labor, *your* interests are improved or relaxed accordingly. Make your every reply and every action take the character you would put into it if you owned the whole show from the bandwagon down! Let's see if we cannot shortly have the Public speaking of Bell Telephone people as the most courteous, satisfactory persons to deal with in the entire community. This is the thought I want first to draw out of this study. And it will pay, and pay well at that.

Then there is another thought we need to digest with care.

In our strictly personal relationship to our work we maintain three very real responsibilities to ourselves.

First—Our daily living. If we have a wife and children, their support and education. Into the daily scheme of things we must put some play, some amusement, plenty of laughter and much fun. But we should temper it, if possible, so as to permit of

Second—The gradual accumulation of a nest-egg against the passage of time, and the approach of age and obsolescence. This is quite as much a man's duty, gentlemen, as to earn a good living to-day and to-morrow.

We have the direct assurance of President Vail that the long-looked-for pension plan is soon to be launched, and this will make for our relief and comfort in old age without doubt and does but add weight to the argument I am making this evening—that the employees are indeed an important part of the Company, so important that after a term of satisfactory service, or in case of disability, the Company itself will take a certain responsibility for our further support. But this is not enough. It is each man's duty to build up, inch by inch, little by little, his own retirement nest-egg.

Then, thirdly, there is every man's right to cherish the reasonable ambition of promotion and advancement. This, if kept within proper bounds and under complete subordination to present duties and responsibilities, is one of the most potent of all factors in holding us steady to our work, keeping us faithfully and loyally at our posts. And there is no other field of effort that I know of wherein men like you and I can find truer opportunities for prospering along these particular lines of thought than under the banner of the Blue Bell!

And this leads me to a suggestion. I mentioned some time ago a certain "dual connection" of which I spoke approvingly. I meant the dual relationship of shareholders and employees. There are very many reasons that move me to urge each man of you to set up for himself the ambition of literally owning a small fraction of the splendid universal Bell Telephone System which we swell with pride at calling "ours."

There is a saying that "where a man's treasure is, there will his heart be also." Get you some part at least of your treasures into the shares or other securities of our Company. It will surprise you to find how you will glow with added pride when each year you, as a shareholder of the American Telephone & Telegraph Company, receive and read the annual report and come to appreciate the wonderful extent, importance and power of the Company you belong to and own a bit of.

To go back once more to the matter of our relations with the public. Believe me, there is nothing more important in the entire scheme of

the problems surrounding our business than is expressed in just that sentence—Relations with the Public! Satisfactory relations with our customers! What does it mean reduced to plain everyday terms? Doesn't it mean, Service as nearly perfect as human brains and efforts can make it? The business transacted promptly, honestly, politely and in every way pleasantly? Complaints received in a spirit that makes the person complaining glad that he made the complaint and certain that it will receive prompt attention and requisite correction? Friendships with customers sought and maintained by dint of agreeable and satisfactory treatment of their needs, their suggestions, their criticisms, their correspondence, their emergencies and their own occasional forgetfulness of the amenities—which should but yield us extra opportunities for showing off our own equipment for unfailing good humor and unceasing courtesy and politeness?

All this sounds as I feared it would from the very beginning, a good deal like a preachment, but that I am only in a poor, weak way putting into language the impulsive feeling which you men—and equally all the other fine fellows up my way and throughout the whole length and breadth of our organization—have down in your hearts of hearts, let me ask you what were the motives or considerations that prompted the following? Were they not this sense of inherent devotion, loyalty and pride for the Company we represent?

Away back on the first day of June, 1890, at the height of the terrible Johnstown flood, when railroad tracks, telephone and telegraph lines in Cambria, Blair and Huntingdon Counties of Pennsylvania were literally wiped out of existence, old John Davis, then a station lineman at Altoona, now a foreman in our Plant Department, swam his team straight across the raging Juniata River, repaired the Altoona-Hollidaysburg trunk lines and established service between these towns. The next day he again swam the same river at Franklin Forge with a single horse, carrying over with him a wire with which he then proceeded to pull over his buggy, and once more established telephone service, this time between Hollidaysburg, Altoona and Williamsburg, at that time important towns to each other and to the Pennsylvania Railroad and sorely in need of the communication facilities which by this heroic service John Davis afforded them.

On June 2 of that same calamitous month, H. H. Hicks, a station lineman at Altoona, literally drove the railroad tracks five miles from Hollidaysburg to Roaring Springs, established service between Altoona, Hollidaysburg, Roaring Springs and Martinsburg, giving to the Pennsylvania Railroad Company, by way of a rural telephone line from Martinsburg to Bedford, its first communication with the outside world. In order to establish this service and to help out the railroad company, it was necessary for two men at Martinsburg to sit up several days and nights and hold receivers together, thereby giving direct communication to the General Superintendent of the Pennsylvania Railroad Company at Altoona and the office of the District Superintendent at Bedford.

On June 3 the same John Davis previously mentioned and five other men, in company with our present Williamsport District Manager, Mr. K. C. Raup, started to walk from Altoona to Huntingdon via Tyrone, a distance of thirty-four miles. By the night of June 5 they had established the service with Tyrone, and by the night of June 6 they had established con-

nections with Huntingdon. They carried upon their backs the necessary wire, brackets, etc., crossed the dangerous Juniata River in a canoe, tied the wire to fences, barns, trees, etc., and when the connections were established turned the service over to the Pennsylvania Railroad Company for their use, giving them their farthest point of communication east at that critical time and thus enabling them to handle work trains and men in a systematic manner between Altoona and Hollidaysburg. To people able to recall the horrors and terrors of that Johnstown flood the services of these brave men mean volumes. There was no thought of self-glorification in anything that they did. It was simply the straight response to the Blue Bell impulse that beat in their hearts and made heroes of them.

I recollect that the months of March and April of the year 1900 in Altoona brought us terrific snow and sleet storms, putting us and our competitor equally practically out of business. The Local Manager, responsible for the re-establishment of that Altoona service, worked without let-up three days and two nights planning and handling his work, at the end of which time he had every single station working. The morning after the storm the members of our competing company became so discouraged that they closed their office for the day and sent their operators home. Not so with the Blue Bell forces. They hammered away hour after hour, refusing to be discouraged, and their work was so appreciated by the public of Altoona that in less than three months we had reversed the situation and were leading our competitor by a handsome margin, from which time on we have practically had no serious competition in that community. Expressions of appreciation of this work at the hands of the public were heard from every side, and there is no doubt whatever that the conduct of these men who were acting for the Blue Bell of which they were so proud was the real factor that changed the situation in Altoona and resulted in the friendly relations which we have ever since enjoyed with the public of that place.

About ten years ago a fire broke out at one of the middle sections of a big switchboard of the Philadelphia Company in their exchange at Eleventh and Filbert Streets of that city. Sitting squarely in front of the affected section was an operator named Kelley. The first evidence that the switchboard was on fire was smoke which came out of the jacks before Miss Kelley, and she promptly and coolly reported the matter to the Chief Operator. She sat there apparently unconcerned at her work and kept right on making and taking down connections. Presently spurts of flame began shooting out of the jacks, in addition to the smoke; but Miss Kelley kept on operating. The flames began to be so startling that the operator to the left of Miss Kelley disconnected her head telephone and started to leave her seat in panic. Miss Kelley, without ceasing to operate with her right hand, reached over and pushed the neighboring girl back into her place, and paused in her work long enough to say, "You keep your seat and continue to operate until you are told to leave it." I do not see that there is any real difference between the spirit displayed by this heroic operator and that displayed by Private Anthony, who calmly saluting at the door of Captain Sigbee's stateroom announced to him, "Sir, I have the honor to report that the ship has blown up."

(Continued on page 10)

The Employee as an Important Factor in Our Relations with the Public

(Continued from page 9)

On April 9, 1910, during a terrible fire in Middletown, the building in which our switchboard was located being in the heart of the fire district, Inspector William Fitzpatrick, upon his arrival from Harrisburg by motorcycle, knowing that the fire had gained such headway that the exchange was doomed and determining to hold the fort a sufficient time if possible to permit of the removal of the board, although the heat was so intense that the window panes of the central office building were cracking and breaking, and although the pole was blazing from top to bottom, obtained a garden hose and rapidly climbing the burning pole alternately directed a stream of water down the pole to prevent himself from catching fire and then at the side of the building to hold off its destruction while the men were loosening the board and cutting the cables. It would be possible for someone to write a volume for the simple purpose of recounting the splendid exhibitions of courage and devoted bravery given to the public and to the work by employees of the Bell Telephone Companies, and frankly I hope that someone will some day undertake such a work, which I believe would find ready space in the libraries of every one connected with our organization.

But "Peace hath her victories as well as War," and while these tales of wonderful courage are inspiring and stir our blood and heighten the warmth of our fellow feeling for our comrades of the Company, yet equally valuable to the Company are some of the less heroic incidents that come to mind in connection with the preparation of a paper of this sort. I have in mind a certain Local Manager of the Company whose standing in his community is so strong that he is regarded by every man, woman and child in the place as the telephone man, and while the country surrounding his particular community has been the scene of perhaps as hard a struggle on our part with competitors as we have had anywhere to undergo, his community has practically never had any other company than the Bell performing its telephone service.

I know of another case where long years of residence on the part of a certain salesman had so ingratiated him, due to his pleasing personality, with the important business people of that community that when last year a new rate schedule was put in effect in that city, whereby we were faced with an unusually large loss in revenues unless we should succeed in superseding a tremendous number of cheaper grades of service to better grades, it was deemed advisable to place the entire work of these supersedures in his hands; and through his efficient personality and innumerable friendships he not only succeeded in making good our estimates, but in handsomely bettering them.

I know of another case where, through the efforts of a certain agitator who had been elected to Councils, certain extremely hostile resolutions were passed by the local Councils of that city. The standing of the employees of the Company in that town was so thoroughly favorable with the public that without exception the newspapers of the community took up the cudgels for us, and largely by the editorial position of these newspapers, together with the very generally friendly comment of the public heard

on all sides regarding our Company, the Mayor of the city vetoed the resolution, and we were saved from further annoyance.

I could tell you of time after time when newspapers, of their own accord, have spoken of the excellent service which was being rendered by employees of the Company and congratulated the Company upon being so faithfully and well served by its employees. I know of one case where a Local Manager, by his constant courtesy to a certain newspaper man whose paper was generally known as the "opposition organ," and who was himself of the "chronic-kicker type," so finally won over his regard and his friendship that the whole attitude of his paper has been changed, and he has recently, of his own accord, given us a most beautiful write-up and no end of subsequent publicity, all of a thoroughly favorable character.

Not long ago there came to my notice a case where the pay station attendant who had been working faithfully throughout the usual business day, was requested by a customer to obtain some sixteen local and toll connections a few minutes before the closing hour. The young woman took such pride in our service that she stayed right there for an hour and a half after the close of the usual business day and attended to the sixteen calls in question. The customer was so pleased by this treatment that the next day he came in and arranged for an installation of our service in his residence. A few days later another member of this same family called at the office and also signed an application for direct line service at his residence, stating that his selection of our service was entirely due to the courtesy which had been extended to the customer by our pay station attendant.

Recently I heard of this fresh evidence of enthusiasm and proper spirit on the part of a salesman. It was midnight in a small office and our salesman had just returned from a trying rural meeting. An urgent call had just been received at the office from New York. It was a call of a life or death character for someone away out in the country, and due to the lateness of the hour the operator had been unable to reach a pay station located some three miles from the residence of the party wanted and was so unable to send out a messenger. Upon learning the character of the call and the importance for the service, our rural line salesman, obtaining a fresh horse from the stable, jumped in his buggy and drove fifteen miles to the home of the person wanted, awakened him up and took him to the nearest pay station where they roused the proprietor, and where the conversation with New York was promptly established. The salesman, returning after taking the party home again, and climbed into his own bed at 6.00 o'clock the following morning. It seems to me a safe prediction to promise that particular rural line proposition as one of the coming Class "A" Bell rural lines in that vicinity.

A few months ago a certain salesman calling upon one of the large business houses of his town for the purpose of selling them additional service, found the head of the firm confined to bed on account of an accident and found his employees more or less disconcerted and at a loss as to what to do about important matters of business requiring immediate attention. The salesman, sizing up the situation, proceeded at once to the gentleman's residence, and upon being admitted to his bed-room, after telling him of his sympathy for his accident, suggested that it would be well for him to keep in touch with his business by means of an extension set placed at his bed-side. The man immediately grasped the importance of the situation, promptly signed

the necessary contract for the service and within two hours' time was directing the affairs at his office over the extension telephone which was promptly installed. He continued to conduct his business by this means for the next three or four weeks and so cordially appreciated our interest in his welfare and our conduct in the matter that we have not only signed him up for the necessary additional service at his business place, but through his immediate friendship and boosting efforts, have obtained a private branch of fifteen stations at another town, besides a number of direct line installations for which he was entirely responsible.

In a certain town where the competitive fight has been a long and a hard one, we recently put our exchange in the hands of a Local Manager whom we believed to have the necessary personal equipment, both because of his wonderful affability as well as because of his thorough business efficiency, and whereas it had been an up-hill fight prior to his taking charge of the situation, he has in the past few months so won to himself the good-will of the entire community that we are to-day rapidly passing our competitor, and it is no uncommon thing to hear the members of the public in that community remark upon the personality of this particular Local Manager, whom they always find it a pleasure to deal with, and who goes about with a smile and a nod that makes new friends for him every day of his life. I know of a certain Collector of whom I heard a speech made recently by one of the subscribers of his town, to the effect that he was always so manly and so courteous when he called upon business that the subscriber felt it was his duty to mention the matter to the Local Manager.

Another subscriber who had been constantly slow in making his payments, falling under the charm of the personality of this particular Collector, stated to the District Manager upon meeting him one day on a railroad train, that due to the courteous manner in which this Collector had explained to him the necessity for his payment reaching us not later than the tenth of the month, he proposed to turn over a new leaf in the matter and would make it a point hereafter to comply with the Company's routine.

Not long ago in one of our exchanges one of our Salesmen was asked by a subscriber whom he should call up in connection with certain information which he wanted about his telephone. When told by the Salesman that the best man to call up in connection with this sort of information was the Wire Chief, whose name he then gave him, the subscriber replied, "Oh, yes. I know that man and I am glad he is the one with whom I should deal in this connection, for whenever I have occasion to see him or call upon him I get immediate satisfaction and attention." It would be possible for me to continue to cite you instances of this sort literally by the dozens, but I think I have shown you what I mean when I say that there is an impulsive loyalty to our business and to our Company pounding away in the breasts of every man and woman enjoying membership in the Blue Bell fellowship, and it is a fine thing for us and for the Company as a whole that this is true. In a way it is one of the Company's principal assets, although not susceptible of reduction into dollars and cents figures at the hands of the Comptroller, making for the constant success of the Company even more perhaps than any other one factor at its command.

Public relations constitute such an important consideration to any public service business that President Vail, in his 1910 Annual Report of the American Telephone & Telegraph Company

recently issued in printed form, gives it careful treatment covering about five pages of the report. He says, "In all times, in all lands, public opinion has had control at the last word. Public opinion is but the concert of individual opinion, and is as much subject to change or to education."

It is based on information and belief. If it is wrong it is wrong because of wrong information, and consequent erroneous belief. It is not only the right, but the obligation of all individuals, or aggregations of individuals, who come before the public, to see that the public have full and correct information.

He points out that over 1,000,000 new subscribers came into the ranks of Bell-telephone-service-users in 1910, and goes on to say that it is because of his intense desire that they and all the world shall know the magnificent aims and standards of Bell service that leads to the continuous reiteration of "the policy, facts, beliefs and desires of the Bell System and those administering it."

Now you and I and the countless army of Bell Employees have every day the opportunity of co-operating with President Vail in his eager desire to bring before the Public the full measure of our splendid "policies, facts, beliefs and desires."

It should be our joy and our pride to help along to the full extent of our several abilities. By always being responsive, courteous, patient and efficient, we may do this day by day, and so come in time to place our splendid organization at the very fore-front of the Public regard!

In closing this little talk, gentlemen, of The Telephone Society of Baltimore, permit me to say that nowhere that I go do I get a more impressive conviction that right here in this society are scores of men made along exactly these lines of sterling loyalty and honest devotion!

There has always been something in the very character of our business that seemed to draw into it men of just this type. I was impressed with the fact nearly twenty years ago when I first entered the goodly Company, and it has continued to impress me more and more ever since, and perhaps, gentlemen, it is somewhat due to this very fact that the glorious record of the Blue Bell Companies was possible. At any rate let us be glad to be a part of so splendid a Company, and let us each determine that the Public—our customers and our judges, are going to think better of The Blue Bell every single time they have anything to do with us or we have anything to do with them. If we adopt an honest determination of this sort and live it out, there will be no competitor for first honors with the American Public. The Blue Bell will continue to hold as it does to-day by right of just this sort of deference to its Public relations and responsibilities, first place among public service corporations all the world over!

Woodbine's Party Telephone Line

By William J. Murphy, in the *Pittsburg Gazette Times*

WOODBINE as a town is sick. The new telephone system, only recently installed and completed, is the chief factor resulting in a rude shock to the refined sensibilities of this aristocratic and reserved community. But, under skillful nursing, scientific treatment and fresh air, there are hopes that neighbors will again be on speaking terms within the year.

It is a cheap telephone system—the cheapest of the cheap—installed and put into service

with an eye single to economy—with 'phones of the vintage of '76, and wires gathered from a junk pile. No need for a central, or exchange, here. When Doc. Henderson calls up the drug store every telephone bell in town jingles. When Mrs. Bradley orders the storekeeper to send her up a spool of thread every household hears and likewise listens.

It is called a party line. To distinguish one call from another, a series of rings and pauses was adopted similar to the Morse telegraph code. As all residences in Woodbine are on Main Street, it is readily understood that the system was not at all expensive. It was not even necessary to buy poles. The wire is strung from house to house, up one side of the street and down the other side.

Doc. Henderson started the unpleasantness when he said something through the 'phone to Mrs. Riggs that would not be admitted through the mails.

The doctor had just returned from a professional visit to the Martin home. Mr. and Mrs. Martin have been married about a year, and are counted among our best people.

"Who is this?" asked the doctor as he took down the receiver.

"This is Mrs. Riggs," came the answer. "Say, doctor—"

"Well, what can I do for you?"

"Doctor, is it a boy or a girl?" came from Mrs. Riggs.

"I don't understand you," returned the doctor.

"You just came from Martins', you know—I wagered it would be a boy—and, how much does it weigh?"

Then came those prohibited words from the Doctor, swift and distinct, burning the fuse in his telephone, and sending Mrs. Riggs to bed with a nervous collapse.

Mr. Martin had remained at home that day, and called Dr. Henderson to give him something to relieve his neuralgia. Mrs. Martin is still doing her own housework.

Nobody suspects that everybody in Woodbine listens, no matter who gets the call. And so it was when Mrs. Norman gave her 'phone three turns, a pause, and a turn—that being the signal for Mrs. Bentleigh. Mrs. Bentleigh answered promptly. A score of other ladies took down their receivers, among them Mrs. Sharp, who has acknowledged to being 35 for the past 10 years, according to Mrs. Norman.

Mrs. Sharp reported the whole conversation to her husband, which was something like this:

"Is that you, Mrs. Bentleigh?"

"Yes; who is this?"

"This is Mrs. Norman."

"Have you gotten over the Henderson party yet?" inquired Mrs. Norman.

"Oh, yes; wasn't it grand?" replied Mrs. Bentleigh.

"Did you notice Mrs. Sharp's new hat with all the gay colors on it?"

"Yes—such a dowdy thing for a woman of her age, and—"

"It might be all right for a girl of 18," broke in Mrs. Norman; "but for a woman old enough to be a grandmother—"

The receiver was frozen fast to Mrs. Sharp's left ear.

"And that big brass brooch was very poor taste for a woman who has no complexion."

"I suppose she purchased those side combs at the 5 and 10 cent store."

"That diamond ring was certainly borrowed for the occasion."

Mrs. Sharp could forbear no longer. She summoned all her reserve force, and spoke calmly and directly into the 'phone:

"Are you there, Mrs. Norman?"

"Yes."

"Are you there, Mrs. Bentleigh?"

"Yes."

"This is Mrs. Sharp—"

"Oh—ooh—ooh!" came over the wire.

"I have heard every word you ladies said," continued Mrs. Sharp, "and I cannot find language to express my scorn of you. Goodby."

Mrs. Norman and Mrs. Bentleigh are down with the grippe, and Mrs. Sharpe is confined to bed with nervous prostration.

Bob Crosby and Dick Turner, in making daily trips to the city time their arrival at the station so as to swing on the rear platform of the train just as it is pulling out. They have excellent reasons for not wishing to ride in the same car with Henry Brooks.

Last Sunday afternoon the weather was too rough to leave the house, and Crosby called up Turner. The new telephone was a novelty in Woodbine, but in the city offices where they work they call it a dashed nuisance.

Not for a moment did they imagine it was a party line and that everybody in town was on, listening to rare morsels of gossip. That hour's confab "was far-reaching in its effects," as President Taft is wont to say.

There are so many versions of the story that it is quite impossible to report the exact conversation, but enough is known to give Crosby and Turner a first degree verdict for grand slander. Alice Bronson, to whom Henry Brooks is very attentive, was the first to fall a victim of woman's insatiable curiosity, because she heard Turner ask Crosby if Henry Brooks had not taken the Gordon girl to the show in town Friday night. Crosby thought he had, and that the couple occupied the same seat in the train out the next evening, the Gordon girl having visited a relative meanwhile. Alice was trying to listen with both ears, and she heard more than her system could properly absorb. She dropped on the floor in a heap.

When Henry Brooks called on Alice the Monday evening following that lady met him at the door in person and they did their talking through a six-inch aperture. Alice opened the argument by suggesting that "Mister" Brooks might receive a more cordial welcome from Miss Gordon. And with that, both argument and door closed, as one might say, in unison.

The engagement between Henry Brooks and Miss Alice Bronson is shattered.

But the worst is yet to come. Spuire Hankey says the injuries, physical and mental, arising from Sunday afternoon's telephone talk, harmless in itself, is the greatest calamity since the Johnstown flood.

"Those thoughtless young men talked about every man and woman in town," said the squire, "and here we are, as though a cyclone had swept away the whole social fabric."

"Husbands and wives are estranged, the divorce courts will be thronged, I fear; women scowl at women, lovers are separated, and man is arrayed against man. Small wonder that so much illness is reported," concluded the 'squire.

The antique 'phones are being torn out at the rate of 17 or thereabouts a day, and the wire is going back to the junk heap. The town authorities have given a franchise to the X. Y. Z. Company, and substantial poles and new copper wire will soon be strung the entire length of Main Street and a 1911 model exchange installed.

It is reasonably safe to predict, therefore, that the citizens of Woodbine will again be on speaking terms within a year.

Philadelphia Division

D. J. CLEARY, Division Correspondent

The local department store which has been featuring "Telephone Suggestions" for several months recently had two exceptionally striking proofs of the manner in which this idea has "taken hold." In one case poultry wire netting was emphasized at a special price; all of the stock featured was sold in 3 hours after the opening of the store. In the other, a lot of mattresses was quoted at an interesting price; 51 were purchased during the day. All of these purchases, it should be understood, were made by telephone.

The *North American* of April 13 printed an item telling of a Philadelphian who was accidentally locked in his place of business. The man was becoming very much excited when he remembered that there was a telephone in the room and that the *North American* information bureau could possibly furnish him the address of a friend whom he might call to his rescue. After receiving this inspiration the rest was easy. He telephoned his friend and he, in turn, hurried downtown to release the prisoner.

An interesting indication of the growth of "telegrams by telephone" traffic is shown by the following comparative figures obtained from the Western Union Company's local offices:

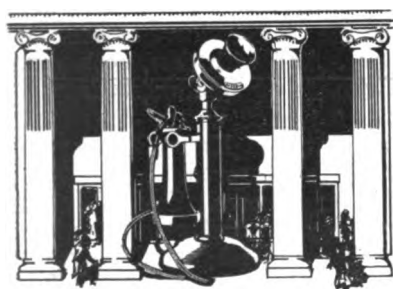
Telegrams Delivered

	1910	1911
January	5,123	9,423
February	4,642	9,444

Telegrams Received

	1910	1911
January	2,590	4,123
February	1,884	6,061

The Pomeroy Construction Company, of Philadelphia, has been awarded the contract for additions and alterations to the Company's Oak Lane building.



Entrance
to
Wanamaker's,
Philadelphia

"This store is never closed to the telephone" is the notice at the top of the store directories placed just inside the street entrances of John Wanamaker's department store, Philadelphia.

Philadelphia-New York Service

On and after May 1 it is announced that "sixty-second service" between New York and Philadelphia will be the rule, rather than the exception. Increased facilities, coupled with a far-reaching development of the "two-number" operating method, make possible this long anticipated stage of efficiency. The charge for this service is slightly reduced, and the new rate (65 cents for 3 minutes) is applicable from all stations in Philadelphia and Camden.

A comprehensive description of this innovation is being distributed in printed form along with the regular monthly subscribers' bills.



Porcelain signs, 30 inches wide by 6 inches deep, may now be ordered from the Western Electric Company for use on top of those booths which need this additional publicity. The code letter for ordering is "J." The bells and the background of the letters BELL TELEPHONE are blue. The seals are white with blue letters. Six perforations are provided for fastening the sign in position by means of angle irons. Inasmuch as the tops of booths differ, angle irons are to be arranged for separately. The work is to be done by the Plant Department on regular line order and the charge for material, etc., is 105-68.

Telephone Societies

The Philadelphia Telephone Society

1420 Chestnut Street
May 2

Speaker: H. Mouradian, Engineer.
Subject: "The Recent Progress in Transmission."

The Telephone Society of Baltimore

5 Light Street
May 3

Speaker: E. L. Mattice.
Subject: "Rural Lines."
Speaker: W. A. S. Onion.
Subject: "A Trip to Niagara" (Illustrated).
At this meeting officers will be elected for the ensuing year.

Blue Bell Society of Meadville

226 Chestnut Street.
May 3

Speaker: Ralph Higby.
Subject: "Sub-station Wiring."
This society held its first annual banquet on the evening of April 19.

The Telephone Society of Pittsburg

Engineers' Auditorium, Oliver Building
May 4

Speaker: Nathan Hayward, Chief Engineer.
Subject: "Planning."

Western Maryland Telephone Society

Plant Office, Hagerstown
May 9

Speaker: H. B. Plankinton, Plant Supervisor.
A banquet at the Dagmar Hotel will follow the meeting.

Employees' Beneficial Association

On Friday evening, April 28, The C. D. & P. Telephone Company Employees' Beneficial Association held its annual installation of officers at Montefiore Auditorium, Fifth Avenue, Pittsburg. Following the installation ceremonies a minstrel show was presented by some of the members. This was followed by dancing from 9 until 1 o'clock.

The Day Letter

In a recent statement regarding plans for the improvement of telegraph service in the United States, Theodore N. Vail, President of the American Telephone and Telegraph Company and the Western Union Telegraph Company, discussed several interesting phases of the new day letter telegraph service that has been inaugurated by the Western Union Company.

Speaking of the faults of present day telegraph service in general, and particularly of the defect that out of 25,000 Western Union offices only 500 are exclusively the Telegraph Company's representatives, he said:

"What we are trying to do is to eliminate the imperfections in collection and delivery and also, by joint occupancy and joint use with telephone companies, get all offices in the custody and charge of employees who have only one interest to serve. Until this is done general improvement cannot be made in the service."

Continuing, he explained present conditions and plans. "To handle an expedited service during the four or five rush hours of the day means having plant which must stand idle up to 66 per cent. of its capacity during the remaining hours of the day. It is our intention to try out first and see if we cannot, without raising present rates, which are very cheap considering service performed, make this regular business the expedited business and ultimately give deferred business at cheaper rates, rather than expedited business at higher rates."

It is interesting to learn that the Western Union Company by the day letter innovation takes a chance of losing about \$1,250,000 in annual revenue. By this it is meant, President Vail explains, that if all messages now sent with enough extra words to make the rate above the day letter rate should be sent as day letters the loss in revenue would approximate the figure named.

But if the public realize the business and social advantages of the day letter in the degree hoped for it will mean not only a continuance of this feature, but the introduction of at least one other—an equally radical departure now spoken of as a "deferred short message."

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

MAY 15, 1911

NO. 10

NATHAN HAYWARD

Chief Engineer, The Bell Telephone Company of Pennsylvania and Associated Companies

CONSTRUCTION*

JAMES CUNNINGHAM, Supervisor of Construction

OUR Chief Engineer was born in Boston, Massachusetts, in 1872.

As a boy he attended the Roxbury Latin School, one of the Boston public schools which bears the distinction of being one of the oldest schools in the United States—founded prior to 1650.

Mr. Hayward entered Harvard University in 1891, graduating in the class of 1895 with the degree of A.B. He then took a two years' course at the Massachusetts Institute of Technology and graduated in 1897 with the degree of S.B. During one summer's vacation he worked on the installing of a power plant and an electric railroad in Southboro, Massachusetts.

Mr. Hayward's first regular position was that of Assistant in the Physics Department of the Institute just mentioned. Professor C. R. Cross, head of that department, recommended him to Theodore Spencer, and in the summer of 1898 Mr. Hayward was appointed to the position of Service Inspector in our Traffic Department at Philadelphia under W. R. Driver, Jr. Later he was made Traffic Manager—the title then given to those in charge of a number of central offices—and after that Traffic Engineer.

During Mr. Hayward's time as Traffic Engineer, the greater part of the detail work was done in connection with the establishing of direct and tandem call circuit work between Philadelphia and several Philadelphia suburban towns—an innovation heartily welcomed by our subscribers.

In 1904 Mr. Hayward was made Engineer of The Bell Telephone Company of Philadelphia and of The Delaware and Atlantic Telegraph and Telephone Company, reporting to P. L. Spalding, was then General Superintendent.



Eighteen months afterward—February, 1906—Mr. Hayward became General Contract Agent of the foregoing Companies, succeeding B. W. Trafford, who had become General Manager of The Chesapeake and Potomac Telephone Company.

With the consolidation of the Companies Mr. Hayward was made Chief Engineer of The Bell Telephone Company of Pennsylvania and Associated Companies.

IN many of the papers read before this Society and also in numerous published articles stress has been laid upon the importance of accomplishing our ends in the most economical manner.

The adjective "economical" does not mean—cheap.

The latter word always conveys to my mind, in addition to the idea of a low price or cost, a corresponding poor quality. An economical job means a first-class piece of work at the lowest possible cost for such work. This Company, as we have been told and can easily see, is constantly aiming to improve the service and, at the same time, reduce the cost of such service to the public. These purposes are accomplished in many ways with which I am not familiar, but I can say, and I am sure you will all agree with me, that the initial cost of the Plant and the Maintenance of the same have an important bearing on the cost of service. Therefore, such systems or methods, which tend to reduce the construction or maintenance costs without affecting the quality of the work, are what we are looking for.

To-night I will endeavor to show you some of the improvements in methods and materials which have enabled us to reduce the costs of heavy construction to a marked degree. Underground construction is our greatest item of cost, representing in Philadelphia 50% of the value of the plant, and therefore I will start with this as my first subject.

Underground Construction.

To put wires or cable under ground, the first

* A paper read before The Philadelphia Telephone Society, April 4

(Continued on page 4)

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The Telephone News

Published the first and fifteenth of each month in the interests of
 The Bell Telephone Company of Pennsylvania
 The Delaware & Atlantic Telegraph & Telephone Co.
 The Central District & Printing Telegraph Company

 The Chesapeake & Potomac Telephone Company
 The Diamond State Telephone Company

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SUBSCRIPTION PRICE:

To employees of the above Companies NO CHARGE
 To employees of OTHER BELL COMPANIES \$1.50 per annum,
 payable in advance

Vol. VII MAY 15, 1911 No. 10

"No Further Use"

The problem of "saving" stations which have been ordered disconnected is one of the most important ones in the commercial part of the business. Taken as a body disconnected stations may be compared with the spendthrift son who keeps his father hustling to supply him with pocket-money. If those assigned to the work of obtaining new business were to neglect the "disconnect orders" their work of showing a steady but satisfactory gain would become a task comparable only to that of Sisyphus or of the Danaides.

Among the regular monthly reports prepared by the Commercial representatives, that one which assigns reasons for "lost" stations is especially interesting.

To the reason "Can't afford" a number of stations succumb each month. Would it be unfair to term these as examples of poor salesmanship on the part of the first representative who placed them there, or is the loss due to lack of interest in failing to show the subscriber that his greatest sacrifice would be through actual disconnection? We know that those who have had service and can afford to be without it are few indeed. Do we always emphasize the fact with sufficient force to save every possible "disconnect?"

Under the reason "Removed from city" a much larger number are classified. In each of these cases we must assume that a well-rounded effort has been made to "sign" the new tenant or to obtain from the owner (if the place is to be vacant for a time) a superseding application in his name. The station then would act as an extra inducement for the prospective tenant who, at occupancy could again supersede in his own name.

"Non-payment" and "Vacated premises" cover two other reasons which our collection routine tends to minimize. There will always be those who attempt more than they can accomplish and it is

fortunate for the business world that the majority of these are bold enough to acknowledge the fact and to arrange for all indebtedness.

The class, however, to which a large number are assigned is "No further use." This reason is like the proverbial woman's reason "Because!" and it is perhaps quite as explicit and satisfactory. "No further use" *must* imply one of the following conditions:

- Subscriber was *persuaded*, not *convinced*, by the original salesman;
- An opposition station either has been or will be installed;
- Subscriber is dissatisfied with some part of the service.

If we can interest an applicant to the point of obtaining his signature for service why can we not educate him to be unwilling to part with it? We do not wish to imply that there are not legitimate cases of "No further use," but we do believe that the genuine examples for which that term is the most explicit reason that could be given are not above five per cent. of the present number so designated.

If we allow a station to be disconnected because the subscriber *thinks* he has "no further use" for the service, we have plainly lost ground. After the station has been removed, to that man the service becomes a "tried and failed" in his own opinion at least, and he becomes a disappointed former patron. From our view-point he is a negative advertiser of our service. He may not again subscribe for years, and even when he arrives at the point of reconsidering it, the problem of obtaining his signature will be more difficult than ever. Moreover, he will have lost a period of education in modern telephone usage that we cannot afford to have him lose.

Better 200 gross	Than 240 gross
10 disconnected	50 disconnected
190 net	190 net

It would not be entirely fair to characterize the man who reports the second condition as doing a better job than the one who reports the first, because the second man may be fighting conditions in a district lately assigned to him. The cause may be due to his predecessor's salesmanship, or rather lack of it. But whatever the conditions or district, the "No further use" report of disconnected service is inadequate and unsatisfactory.

Let's consider the Plant, the Traffic and the Commercial expense resulting from every class of disconnected service and do a still better job by turning in a 90 per cent. "saved" list, or better, of all stations ordered disconnected.

Remember—"No further use" means "Because!"

A Telephone Snob

Usually employes have the good sense to emulate the virtues of their chief. But exceptions do exist. The following incident took place within the last few weeks. As an exception it is unusually strong.

The scene was the outer office of a prominent attorney—the head clerk's room, to be exact. The room was occupied by the clerk and one visitor waiting to see the lawyer. The head clerk was telephoning. And such telephoning! Such tones! He acted like an angry emperor, not only to the operator, but to the people with whom he talked. It was hard on a telephone man's nerves.

Finally the young autocrat jerked off his receiver to make another call.

"Spruce 2475," he snapped.

"NO!—2-4-7-5. FIVE."

He reached his number. As before, he conversed as might the Czar of all the Russias, *if he chose*.

In the midst of the conversation—or better, *perpetration*—in stepped the attorney, cool, dignified and courteous. The noise struck his ear; he stopped aghast. The back of his subordinate was turned. He did not know the chief had entered, and the chief did nothing to inform him. He simply stood still, back to the door—and listened. But his eyes flashed and his fingers twitched. He waited until the clerk finished and, sensing hostility in the air, turned and met his employer's wrathful gaze.

The temptation to detail the points of that short, sharp lecture is strong. It would be good medicine for men, women and office boys that one occasionally meets even at this late day. But it is more merciful to omit it. It was terribly strong medicine. The old gentleman did not boil over. He merely stood there, rocking to and fro on his solidly-planted feet, and with all the art of a skilled user of words told his clerk how remarkably small he had shrunk in his estimation in the last two or three minutes.

If that employee is fortunate enough to keep his job—and it is doubtful—it is a safe wager that henceforth he will at least simulate a manly courtesy over his employer's telephones.

We must keep in enthusiasm if we wait to keep out of a rut. The only difference between a rut and a grave is the width and depth. We soon pass from one to the other.
 —Hugh Chalmers in
New England Telephone Topics.

Harrisburg Division

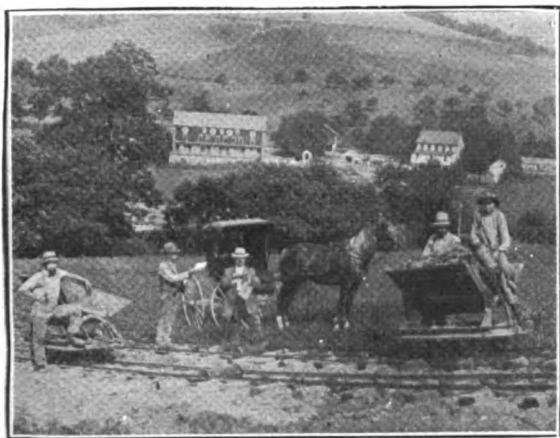
J. C. WEIRICK, Division Correspondent

Allentown District. The Western Electric Company completed the installation of 2 additional sections and 500 lines at the Easton, Pa., central office.

Herbert N. Casson, of New York, lectured on the "Wonders of the Telephone," in Packer Memorial Chapel, Lehigh University, South Bethlehem, Thursday, April 21, to a large audience of students and residents of the Bethlehems. Dr. Drinker, President of Lehigh University, remarked to a Commercial Representative of our Company after the lecture that Mr. Casson spoke to the most appreciative audience assembled at the University this year.

Late in the afternoon on April 18 a woman called at the Bethlehem Commercial office and asked if it would be possible to install telephone service the same day, as her mother was seriously ill. She stated that she had just arrived in town to take care of her and found that there was no telephone service in the house. The Plant Department was consulted and arrangements were made for the installation. Service was established the same day. The following morning the subscriber called the Commercial office and thanked us for the prompt action and said the service had been very valuable during the night.

Harrisburg District. Service has just been opened at the following points: Mercersburg, Pa., with 60 exchange subscribers and 150 rural subscribers—total, 210; Dillsburg, Pa., with 29 exchange subscribers and 34 rural subscribers—total, 63.



Salesman Gruber, Reading District, Signing a Prospect for Telephone Service with the Berks and Lehigh Line

At Mercersburg, Pa., 33 per cent. of the exchange subscribers signed have taken direct line service.

EXCHANGE.	RURAL LINE.	CIR- CUITS.	SUB'S.	NEW SUBS.	TOTAL
Carlisle.....	Wagners' Gap...	1	10	15	25
Hummelstown...	Beaver Creek...	1	1	5	6
Mercersburg.....	State Road....	1	9	16	25
Riverton.....	Hampton & East Pennsboro.....	1	6	4	10
Waynesboro....	Hill Grove.....	1	9	6	15

Supplementals signed to connect with exchanges to which no new lines have been added, 35, making a total of 116 new rural subscribers.

EXCHANGE.	RURAL LINE.	CIR- CUITS.	SUB'S.	NEW SUBS.	TOTAL
Greencastle.....	Locust Level...	1	14	7	21
	Gintners R. L...	1	10	8	18
Mechanicsburg...	Shiremanstown...	1	9	8	17
Mercersburg....	Bradley R. L...	1	10	3	13

Supplementals signed to connect with exchanges to which no new lines have been added, 52, making a total of 121 new rural subscribers.

Reading District. The Douglass Telephone Company has opened its new exchange at Sassamansville. The lines connect with our Company's exchange at Boyertown, Pennsburg and Schwenksville. The territory covered is a rich agricultural district and the people in that section now enjoy the very best of service. Among the towns covered are Sassamansville, Frederick, Congo, Niantic, Obelisk, Hillegas, Barto, Bethesda, Layfield, Green Hill, Grub Mill, Swamp, Stauffer's Store, New Berlinville, Schultz Mill, Hoffmannville and Passmore.

A Lebanon grocer who has an extensive delicatessen trade with wealthy people, in recent conversation with a salesman, made the statement that his telephone netted a gross annual revenue in orders of more than \$700. Striking "while the iron was hot," the salesman soon induced the merchant to sign an application for direct line service.

A few days ago this merchant expressed his entire satisfaction with his better class of service.

The Adams Express Company recently had service installed in its office at Shamokin. Upon being interviewed by a salesman in regard to the service the agent stated that he received 4 calls on the Bell telephone to 1 on the opposition, and that the only time he used the opposition telephone was when he took hold of it in mistake.

A one and one-half story building used as an out-kitchen on the place of Charles Krick, near Elysburg, burned yesterday morning, seriously threatening to also destroy the house and barn on the Krick place. The burned building stood but a few feet from the house. When the fire was discovered Mr. Krick was away from home, but the rural telephone was utilized to arouse the neighborhood, and at least one hundred willing fire fighters were soon on the scene. A high wind made the blaze a difficult one to control, but the efforts of the neighbors finally resulted in confining the flames to the one building.

Scranton District. A traveling salesman representing a Philadelphia firm called at the Scranton office and placed 16 long distance calls. After the connections were established and the conversations completed he thanked our clerk for the courtesy he received at the hands of the Company. He also advised the public station attendant that he succeeded in making sales through the 16 connections amounting to \$3,000. He remarked that Bell telephones were considered among the best of his house's salesmen.

While stopping at a Susquehanna, Pa., hotel one of our salesmen overheard a traveling man tell the clerk at the hotel that he had forgotten to have his trunks checked at Carbondale, and that they were in the baggage office of the railroad company at that town. He seemed to be very anxious to know how he could reach this office. Our salesman, overhearing the conversation, suggested that he call the office over the Company's lines, and gave him the call number. The call was placed, the connection established and he received his trunks the following morning. He thanked our salesman for his suggestion and complimented the Company on the prompt service he had received.

A prominent subscriber to opposition service in the city of Scranton moved recently and decided to have Bell service installed in his new residence. Our representative called and obtained his application for 4-party line service. He advised the salesman that there was sickness in his family, and he would like to have the installation completed as promptly as possible. An emergency line order was issued, and due to the prompt installation the man called our Commercial office and requested a change to direct line service.

A Beach Lake lumber dealer in talking about Bell service said he has occasion to call one of the railroad companies at Scranton relative to the shipment of some cars of lumber. While he was transacting this business he sold 2 carloads of mine props, and the expense in connection with the shipment and sale was only 25 cents. If he had come to Scranton the trip would have cost him \$5. He said it would be impossible for him to transact his business without the use of the Bell service.

The Remington Typewriter Company, after a thorough investigation of the number of calls received over the lines of the Bell and opposition companies, decided that the opposition service was unnecessary, as the majority of their subscribers were using Bell service and because they did practically all of their business over the Bell lines.

Wilkes-Barre District. Much favorable comment has been heard regarding the conduct of the Company's Pittston operators during a recent conflagration at that place.

York District. At the regular monthly meeting of the York Engineering Society, Tuesday, April 25, H. L. Hoke, Equipment Engineer of our Company, read a paper before the Society on "Modern Telephone Methods." About 50 members of the Society were present at this meeting. Stereopticon views were used to add to the interest of the paper. The subject was ably handled and was very cordially received.



Exhibit in a Harrisburg Department Store

Educational Display in a Harrisburg Store

Coöperation on the part of the management of Dives, Pomeroy & Stewart's department store at Harrisburg made possible the placing in the store of an exhibition booth as an educational feature for the public. This booth, completed April 20, has been viewed and inspected by thousands of people, not only residents of Harrisburg, but those from within a radius of fifty miles.

The newspapers commented very favorably on the display. One of them, the *Star-Independent*, devoted nearly a quarter page to the illustration and description under the caption, "Getting on Speaking Terms with a Stranger—The Everyday Telephone." This paper termed it as "one of the best educational attempts ever made by a telephone company."

The booth was 7 feet wide by 9 feet deep, with blue and white decorations, in which vines predominated. Every kind of equipment used in the Harrisburg Division was in use in the display, including a No. 1, a No. 2 and a monitor switchboard. A Commercial representative and an operator were on duty during the time between April 20 and May 6 that the display was made, and the interest shown by the store's patrons and casual visitors was quite unusual.

Construction.

(Continued from page 1)

thing necessary is some pipe or conduit in which to place such cables. At intervals in such a conduit line we must provide a means of easy access to the conduit for the purpose of repairing and installing cables. For this purpose manholes are provided. Until very recently our manholes have been built of brick. The tops of these holes were constructed of "I" beams and brick and the opening to admit access to the hole closed with an iron casting and cover. This type of manhole is very expensive. When the question of building manholes along the new Philadelphia & Washington line was brought up it was first proposed to build buried manholes of creosoted wood planks. This kind of manhole would have been cheap, but not economical. We proposed and worked out a concrete sectional manhole. After considerable experimenting, we succeeded in building a manhole whose sides consisted of two parts each, the top of two parts and the ends of several small blocks. The ends were built in this manner so that the duct could be brought into the hole at varying distances from the bottom. Provision was also made for an iron eye so that pulling blocks could be attached when installing cable. These manholes can be built in quantities at some central point and shipped ready for setting to any place. The cost in place of these concrete holes based on several jobs shows a saving over the brick manhole of 32%.

We have experienced some trouble from the corrosion of sweep bends at the surface of the ground, with the probability of more in time. Cases have come to my attention where the pipe had been destroyed and the cable exposed. Another trouble we have had was the crushing of the cable when the water, collecting in the sweep bends, froze. A sweep bend of concrete or terracotta would not only overcome the above difficulties, but would also be cheaper. In many cases the box of a direct connection is placed directly over the top of the sweep bend. If trouble develops in the box, or in the cable just below the box, it is necessary in most cases to replace the box and cable all the way to the manhole. By replacing the vertical pipe with two pieces of small angle iron—about $1\frac{1}{2}$ "—we not only have a protection for the cable as efficient as the round pipe, but we also obtain a neater looking job. This angle iron pipe also gives us ready access to the cable within. All we have to do is to remove the supporting straps and lift off the angle irons. This completely exposes the cable and permits us to replace the box or replace a small portion of the cable without disturbing the major portion of the run to the manhole.

We designed a concrete sweep bend which is provided with a bell at one end to take the male end of the wood duct; the other end has a square socket into which the square angle iron pipe above mentioned fits. About 50 of these have been placed as an experiment. The cost of a 2" sweep bend is \$2.12—the cost of the concrete bend with the angle iron vertical pipe is \$.73. Thus we have a new type of construction which not only is cheaper to install, but also enables us to reduce our maintenance costs.

The Philadelphia construction force has done but little conduit or duct laying. Of course, we have laid creosoted wood duct for short distances for direct connections, but that is about the extent of our work in this direction.

The expensive part of laying single ducts, and perhaps also several ducts, is the cost of the repaving over the ditch. Lately there has been obtained a "Barrett" jack designed for forcing iron pipe through the earth. With this appa-

ratus we have been enabled to drive a $2\frac{1}{2}$ " iron pipe about 70'. All that is necessary is to open a ditch about 8' long at one end of the run and a smaller one at the other end. The pipe is then forced in, in 7' sections. All necessity of opening a ditch along the whole line of the duct and the subsequent necessity of filling in and repaving is avoided.

From 9 jobs done recently a saving of \$.173 per foot, or 20%, is indicated. These figures include the setting of the sweep bend at the end of the run.

Given a conduit line completed and ready for the installation of cable, we must provide some means of placing a rope in the ducts between manholes so that the cable or cables may be drawn in. The original scheme was to take a short section of small iron pipe, about $\frac{3}{4}$ ", and place it in a duct. Another similar section was joined to the first piece by means of a pipe coupling and pushed in. This was repeated until the end of the iron pipe reached the other manhole. A wire was then fastened to the pipe and pulled into the duct, the sections of pipe uncoupled as they were drawn into the manhole. These pieces of pipe were called rods. From this we get the name of the whole operation—"rodding." This name still holds, whether metal or wooden rods. A steel wire or a machine is used to pull a wire or rope into the duct. The iron rods were unsatisfactory for many reasons. They were heavy, the coupling of the different sections was slow and the rods showed a tendency to break at the coupling where the pipe was weakened by the cutting of the thread. About 2,000' was a day's work for six men with a single team.

A great improvement was made when wooden rods were introduced. These rods were the same length as the iron ones—three feet. Each end was equipped with a bronze ferrule—one ferrule having a male and the other a female thread. No wrench or other tool was required to make a connection between two rods. This is known as a screw rod to distinguish it from later types. These rods enabled us to reduce the cost of rodding over 50%. Five thousand feet is a representative day's work for four men and a single team.

A further improvement was made by the introduction of the "Go-Easy" and "Empire" rods. These are also of wood, but the bronze ferrules are so designed that the different sections may easily be joined without screwing. Each ferrule is also provided with small wheels or rollers which overcome, to a great extent, the friction of the rods against the bottom of the duct and thus enable the men to push the rods in faster. However, it should be noted that this type of rod cannot be used to advantage where the duct contains mud or sand to any extent. Then the wheels become clogged and the rods are much harder to handle than screw rods under similar conditions. Roller rods enable four men with a single team to rod about 7,000' per day, a saving of 40% over screw rods.

Several attempts have been made to design a machine for rodding ducts, but while these may work under ideal conditions, a perfectly aligned and clean duct—we find as a rule that underground conduits do not furnish such conditions; therefore I may say that up to this time we have not had a machine that will compete with manpower, day in and day out, for rodding.

Recently a new type of rod—"Boston Sewer Rod"—was tried out. These rods are obtainable in many diameters and with either a square or round cross section. The coupling is different from any we had used, inasmuch as it makes it very easy to join two sections.

This coupling, however, did not make a rigid joint and the rods had a tendency to buckle at the joint and bend against the duct walls. These rods were tried out on a duct run at Diamond under good conditions, and the regular rodding gang could complete only about 1,600' per day as compared with 5,000' to 7,000' with the other types.

It sometimes happens that a rod breaks in the section or becomes uncoupled. In order to recover the rods two methods are in use. One of these is a development of our own, while the other was picked up during our recent Western trip. We call both of them rod catchers.

Our scheme, as shown, consists of an iron cylinder which can be screwed to a rod. Inside the cylinder is an iron plate which operates like a check valve—opening freely in one direction and being kept closed by a flat spring. When the rod catcher is pushed into a duct the valve remains closed until it is encountered by the rod. The valve then opens and allows the rod to enter it. Then when the rod catcher is withdrawn the "valve" closes down on the rod and holds it tightly. By pulling on the rods attached to the catcher the lost section of rods may be recovered.

The Western type is of an entirely different nature. It consists of two parts, a balloon-shaped lattice work of iron and a hook. The first part is always coupled to the first rod pushed in the duct. Then, in case the rods break or become uncoupled, the hook portion is attached to rods and pushed into the duct from the other end. When the two sections meet, the hook engages the lattice work end of the lost section, which may then be readily withdrawn.

We will now assume that our ducts have been rodded and the cable delivered on the street at the proper location. Everything is ready to place the cable in the duct, and the pulling rope has been drawn in by means of the wire with which the duct has been rodded.

The ropes that have been tried are manila, wire and "Durable Wire." The latter is objectionable, as the fine strands of which it is composed break and, while a few breaks do not materially weaken the rope, they project from the rope, and not being readily seen, tear the hands of the men handling it. Most of our pulling is done with ordinary wire rope. Several schemes have been used for attaching the rope to the cable. The old clevis, which was fastened to the cable by means of spikes or nails driven through the latter, is now rarely if ever used. It was objectionable, as the methods of fastening the cable injured the sheath and allowed the entrance of moisture. If the manholes were wet, the end to which the clevis had been attached had to be cut off and sealed after the section was drawn in.

A wire lacing is used now to a great extent. Ten gauge galvanized wire is woven back and forth over the end of the cable for about two or three feet in such a manner that the harder the pull the tighter the wire grips the sheath. The wire is looped through an eye in the pulling rope as it is woven back and forth. This makes a very satisfactory grip on the sheathing, but does not grip the core of the cable very well. As a result, if the cable pulls very hard, there is a tendency for the sheathing, which is taking nearly all the strain, to pull off. This sometimes happens.

A grip is manufactured of spring steel wires. These are woven together in a manner similar to the wire lacing placed on the cable, with a result that when a strain is placed on the grip the diameter is reduced, thus giving a tight grip on the cable sheath.

This type is known as the "Syracuse Grip." It has this advantage—the time necessary to place

the wire lacing on the cable is saved, but, in addition to the same disadvantages as the wire lacing, these two may be added—cost and short life.

The objection to the above grips—that they do not grip the core very tightly—is overcome by a grip with which we are experimenting. Various types of this grip are used in the West, and it was on my trip to that region last fall that I picked it up. This grip consists of two thin plates about 2' long, each curved to fit around the cable. At intervals of about 6" there is a slight corrugation on the inside of the plates. The two parts are linked together at one end by a ring to which the pulling rope is attached. The plates are placed over the ends of the cable and forced down on the cable until they grip it closely by means of a small special screw vise.

When in position, two ties are placed around the grip in the grooves of the corrugations. These ties simply keep the grip from flying open when a strain is applied. This device gives a positive grip on the sheath and core without injuring the former.

In all the time that this type has been used in the West there is no record of the grip slipping or pulling off the sheathing. The grips are made in two or three sizes for different sizes of cable. Each size will take cables which do not differ much in diameter. For example—one size grip is made for 440 pr. and larger; another for 220-19, and 330-22, etc. With this apparatus we avoid marking the sheath, except the portion to be removed for splicing, and all danger of losing a section from breaking the sheath is avoided.

We now have the rope in the duct and the cable attached to it, but before we can start pulling we must have the reel suspended on an axle clear of the ground so that it will revolve easily. The method usually adopted is to place a steel axle or spindle through the hole in the reel provided for this purpose and to place a jack under the ends of this spindle beyond each side of the reel. The type of jack formerly used was the screw. By turning a nut on each jack the reel was raised clear of the ground. This was slow, as the pitch of the screw was not great.

A so-called pump jack is now used. This has a ratchet and fall arrangement and by means of a lever, which is moved in a manner similar to a pump handle, the reel is quickly raised clear of the ground. Both these schemes are somewhat objectionable. Considerable time is taken up in moving the reel to the proper position at the manhole, leveling the jacks, etc. To overcome this, a pair of cable wheels, designed in the West, have been ordered for trial. They are a self-loading cable truck. As can be seen, all that is necessary is to back the wheels up to the reel, through which a spindle has been placed, pull down on the shaft and the reel is ready. The truck can then be moved to the manhole, and the cable is at once ready for pulling. All the time and manual labor to pull and haul the reel in position and jack it up are avoided.

Everything is now ready to pull the cable in the duct. Now we have the choice of three methods—man, horse or engine power. Originally cable was pulled in by means of a capstan, held in place about 500' from the manhole by means of a steel pin, a ground pin—driven in the earth. This capstan was operated by a gang of men. All delivery and pulling in of cable were done at night. About 1,000' was a day's, or rather a night's, work for fourteen men and two double teams.

The introduction of the capstan, which is placed in the manhole, brought about a great reduction in the cost of pulling. You are more or less familiar with this type, which consists

essentially of a steel shaft extending from the bottom of the manhole to some distance above the ground level. This shaft is suitably braced at the bottom of the hole and at the manhole opening, and is equipped at the top with a spider to which the handles for turning are attached. The drum for taking up the rope may be keyed to the shaft at different points, depending upon the location of the duct.

The number of men used with this pulling apparatus varies from six to nine, depending upon the size of the cable and the length of the section. Equipped with a single team, this gang will pull from 3,000' to 3,500' per day. The greatest improvement in this class of work was the adoption of power. The first outfit consisted of a small gasoline engine driving a suitable winch. The whole apparatus was mounted on a small truck drawn by two horses. A set of channel iron legs carrying two sheaves is furnished with this pulling plant. The sheaves may be so adjusted that the pulling rope is kept in line with the duct and the winch on the engine. In recent manholes, eyes or bars have been built into the wall opposite the duct—openings so that a snatch block may be fastened to them opposite the desired duct. By having the winch close to the manhole this arrangement does away with the sheaves and channel irons. A gang of six men with a gasoline engine can average about 5,000' of cable pulled per day; the record is 7,500'.

Still another scheme has been tried out for reducing the cost of pulling in cable. This consisted in pulling two sections at one time, using a horse as a source of power. One way in which this was accomplished was to put two drums on the manhole capstan. The other scheme was to use a special capstan or crab, which was fastened to the ground some distance from the manhole. It actually consisted of two large shallow drums, one above the other, which revolve around a spindle held in position by a frame which is fastened to the ground. The pulling ropes were led through blocks from the manhole to the crab and the slack taken up on two separate rope reels. This scheme cannot be used to advantage on streets of the city where the traffic is heavy, but in small towns or suburban places it has worked out well when tried.

Another class of work which, while it does not fit in at this point in the order of installing a cable plant, has some resemblance to the foregoing is the pulling out of underground cable. In pulling out cable the manhole capstan is used almost exclusively. The general method heretofore employed to grip on the cables has been a rope sling, which is looped around the cable and grips it tightly when a strain is applied. The other end of this sling is passed around the drum of the capstan. The capstan is revolved until the cable is pulled as far as the drum. Then the capstan is revolved in a reverse direction, the sling is slipped back on the cable and another pull taken. The use of the sling is objectionable, as it has a tendency to squeeze or choke the cable at the point of application. This is generally noticeable for the first 20' to 50', which naturally get the greatest strain when a section is being pulled out. If a section is short or easily pulled, the amount of cable damaged is small; the reverse is the case when a long or hard pulling section is being removed; also, a loose, air-spaced cable is more damaged than cable whose core is laid up tightly. The portion of the cable badly marked is junked. To overcome this feature of pulling out, "Syracuse" grips have been tried, but they have not proved satisfactory.

During my recent Western trip I saw a grip used for pulling out which not only took a posi-

tive hold on the cable but did not injure or mark the sheathing in any way. It is really an enlarged form of the "Kline" grip used on open wire lines. Another type of this grip is used by the Western Union Telegraph Co. I tried out the former grip and found it to be very satisfactory. The price, however, appeared to me to be exorbitant. So we designed a grip which embodies the best features of both the above mentioned types. This has only recently been placed in use. In some manholes, owing to their size, locations of ducts, etc., it is not possible to use the grip, but, whenever it has been used it has shown a saving of both time and material.

As the cable is drawn out of the duct it is pulled up on the street and placed on a reel. The reel is mounted on jacks so that it can be revolved easily. Until lately several men were required to move the reel, especially when there was considerable cable on it. Now by means of a simple apparatus, which we call a reeling up device, one man can easily turn a reel with the cable.

The machine, if we may call it one, is made of angle iron. A square "U"-shaped piece embraces the reel and is provided with hooks at the ends of the legs, which engage the spindle. The base of this "U" is the handle which the operator grasps. A second shorter "U"-shaped piece has its base resting on the circumference of the reel. The ends of the legs of this piece are connected midway on the legs of the first piece by means of bolts in such a way that it can move freely up and down. The base of this "U" piece is provided with teeth at the points where it rests on the edges of the reel. When the first mentioned piece is raised the second part rides over the circumference of the reel until a point beyond the center of the top is reached. When the first part is lowered the second part tends to slide back over the circumference of the reel, but the teeth above mentioned dig into the edges of the sides of the reel and tend to retard this motion. If force is applied to continue the downward motion of the device, the reel, if free to move, revolves. When the men revolved the reel without the use of this apparatus, they were able to hold the reel against the tendency to revolve backward owing to the weight of the slack cable. With the introduction of the reeling device, however, the reel would turn back and release a portion of the slack cable whenever the handle was raised to take a fresh grip. To overcome this, a reel check was designed.

This is simply a large pall or dog similar to those used to prevent the turning of gears. In this case the reel is the gear and the pall consists essentially of a piece of channel iron with a portion of the web cut away so that the legs of the channel extend in beyond the edge of the reel. This keeps the edge of the web from slipping off the reel sidewise. The other end of this channel iron pall is pivoted to a suitable base and by means of a spring is held against the edge of the reel. This device allows the reel to turn freely in one direction, and avoids the use of a man to prevent the slack from pulling off the reel.

To avoid trouble, we do not make multiple splices larger than four ways, if it may by any means be avoided. In the past there was hardly any limit to the number of taps brought out of a single sleeve. The difficulty of wiping such joints and the trouble of opening such splices for changes or trouble caused us to adopt the above rule.

All joints are inspected and those not passing must be rewiped, at the splicer's expense if he is at fault, but not otherwise.

The outside Plant of the Company may be divided into two classes—Underground and

Overhead or Aerial. While the underground wires are generally placed in cables, the overhead wires may be separate conductors on outside insulators or groups of conductors in cables. It is of the latter class of construction that I now propose to devote a few words.

Overhead-Aerial Cable.

The first requisite for overhead cable is to have a good pole line for its support. The usual way employed for setting poles is to have a gang of six or eight men to dig the holes and then erect the poles therein by piking them up. If the poles are very high or heavy, a derrick of some sort may be necessary. As we had successfully made use of gasoline engines for doing a large part of the heavy work in other lines of construction, we tried some time ago to see if something along this line could not be done for hole digging and pole setting. The result is our present power digger. A small goose neck truck, equipped with a gasoline engine which had been used for pulling cable, was furnished with a derrick mounted on the rear. Projecting from the rear of the truck a structural iron frame was placed, which carried a vertical shaft. This shaft has a thread cut on it for nearly its entire length, and is also provided with a keyway for about the same distance. To the bottom of this shaft is bolted a cutting disk, planned somewhat on the order of an auger. A sprocket wheel, provided with a key fitting into the keyway of the shaft, rides on the framework above mentioned. The shaft passes through this sprocket, which is driven by a chain passing over a small sprocket on the shaft of the engine. When the power is applied the shaft revolves, and in order to force the auger to feed downward a split nut is provided. This nut is equipped with a pair of handles and at first sight looks like a pair of blacksmith's tongs. The nut is clamped over the shaft just below the bearing on the sprocket, and as the shaft revolves it is forced into the earth.

The handles of the nut are held by one man, who can release the nut at any time. When a cut of about one foot has been made the nut is released, the driving chain thrown off and the digger hauled out of the hole by a rope running from a swivel at the top of the shaft to the engine winch. After the dirt has been dumped to one side the digger is returned to the hole and the operation repeated.

On a recent job of setting 13 poles two men dug the holes and set the poles in two days with a double team for hauling the power truck. The total cost of this job was \$25.85, or \$1.99 per pole. Ordinarily this job would have required three men for one day digging holes and six men on the second day setting poles. A single team would be needed for both days. The cost under these circumstances would be \$35.35, or \$2.72 per pole. Even if we allow for the gasoline, etc., used on the power digger and make due allowance for interest and depreciation, we have a cost of \$2.12 per pole, or a saving of 28%.

I may mention also several other jobs where this machine showed the marked savings which could be made by its use. On one day of 9½ hours this derrick truck, with two men in addition to the driver, took down two 50' poles at different locations and set them at two locations. The distance traveled was about six miles. The total cost was \$12.65, or \$13.50 allowing for charges on derrick. If the old method—using a gin pole—had been employed, four men would have been required to take down the poles and about six men to set them. It is estimated that this method would have cost \$20.30. In view of the fact that the method for taking down the poles differs from that for setting, and as there would be difficulty in placing

the men, not needed during part of the operation, on other jobs, this estimate is low. At that, the saving shown for the four jobs—taking down two poles and setting two—is \$6.80. The cost of the pole wagon for moving the poles is not included in these figures, as it would be the same in both cases.

In another case involving the removal of two 45', two 55' and one 60' pole, in a street where it was not well to trench down the poles because of obstruction in the highway, two men with the derrick wagon completed the job in one day for \$13.15. If the gin-pole method had been used, the cost would have been \$25.90.

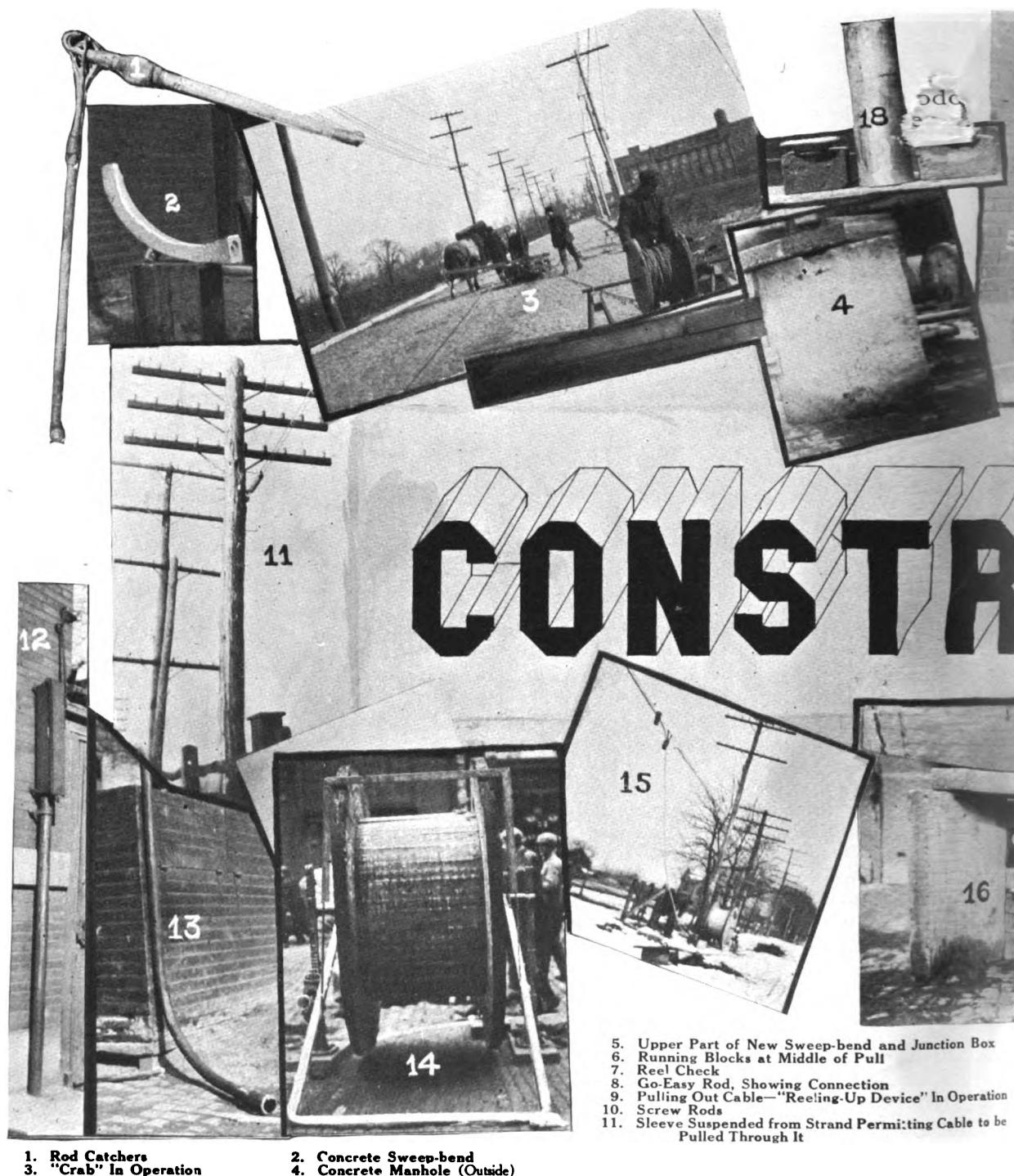
In the larger cities, where special care must be taken, the pole derrick is particularly useful for the odd pole jobs that arise.

In erecting aerial strand and cable, several small but important improvements have been made of late. It was customary to use snatch blocks tied to the pole or strand to lead the cable at the proper angle to the rings and also to carry it around corners, etc.

Later running blocks were devised which clamp directly to the strand. This scheme saved us the time required under the old method of lashing or tying the blocks in position. A further

improvement was made when a hanger was devised which is attached to the running block and clamps the strand. This hanger holds the block at the proper angle for leading the cable up to the rings. In tapping in boxes along an aerial cable, it is necessary to use a split sleeve over the splice or to cut all the conductors and splice them up again if a whole sleeve is used. If the location of the taps is known before the cable is erected, whole sleeves can be hung on the strand at the proper points and the cable pulled through them. A clamp has been devised which holds the sleeve at the proper distance from the strand and allows the cable to pass freely through the sleeve when it is being pulled up. Thus all split sleeves on tap work are avoided, as well as the necessity of splicing any wires except those entering the tap.

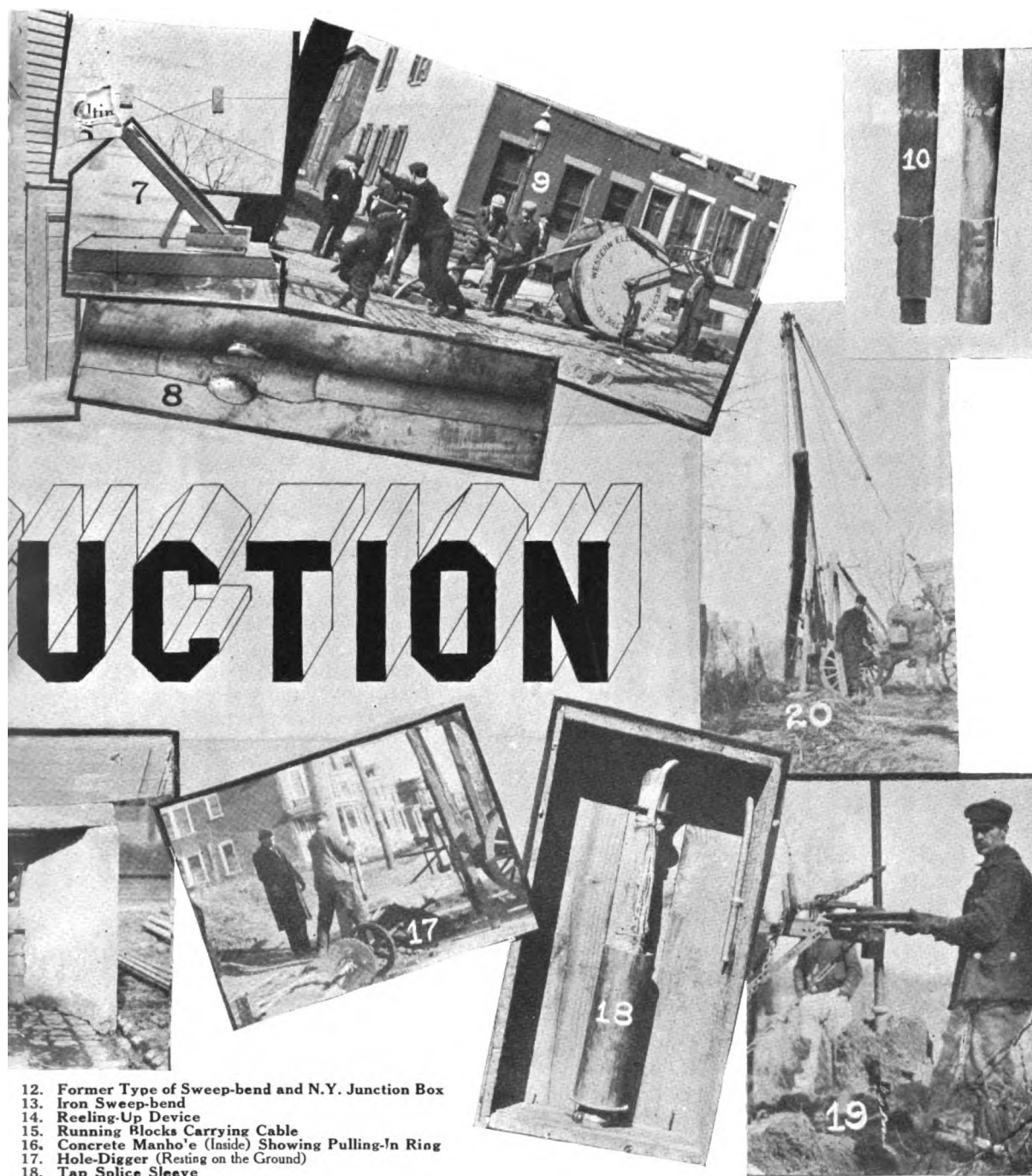
In pulling aerial cable, three general methods may be used. The gasoline engine is one, but the distance of most jobs from the city and the cost of transporting this outfit practically prohibits its use. The other two methods involve the use of horses as a source of power. On straight runs it is probably the most economical to attach a team of horses to a block through which the pulling rope runs. One end of this is made fast to a pole; the other, to the cable.



1. Rod Catchers
3. "Crab" In Operation

2. Concrete Sweep-bend
4. Concrete Manhole (Outside)

5. Upper Part of New Sweep-bend and Junction Box
6. Running Blocks at Middle of Pull
7. Reel Check
8. Go-Easy Rod, Showing Connection
9. Pulling Out Cable—"Reeling-Up Device" in Operation
10. Screw Rods
11. Sleeve Suspended from Strand Permitting Cable to be Pulled Through It



12. Former Type of Sweep-bend and N.Y. Junction Box
 13. Iron Sweep-bend
 14. Reeling-Up Device
 15. Running Blocks Carrying Cable
 16. Concrete Manhole (Inside) Showing Pulling-In Ring
 17. Hole-Digger (Resting on the Ground)
 18. Tap Splice Sleeve

19. Hole Digger, Showing Result of One Cut
 20. Hole Digging and Derrick Wagon Setting a Pole

As the horses walk along the road the cable is pulled in at one-half the speed of the horses. The speed with which a cable can be pulled will depend upon several conditions, such as relative size of cable, rings, etc. When the cable is large and nearly fills the rings, it is necessary to pull slowly to avoid the danger of the cable catching the rings and pushing them along the strand. In cases like this, the amount of cable pulled in a given time can be maintained if two sections are pulled at one time at one-half the speed at which one section is pulled under better conditions.

This is accomplished by means of the same crab mentioned in pulling two sections of underground. The ropes from the crab run through blocks lashed to the base of the poles at each end of a span and thence to the running blocks on the strand.

It frequently happens that a lot of second hand cable is to be used on new plant. Instead of being in 1,000' or 1,500' lengths as most new cable reaches us, this class of cable is generally in short pieces—from 150' to 500' long. To pull these pieces up separately would prove very expensive; so, as the cable is erected, the sections are spliced into lengths for pulling. To prevent any unnecessary loss of cable due to

such work, these splices are so made that the cable splicer may make his splice without cutting off any additional sheathing. A similar splice is made on all classes of cable for connecting the cable to the pulling rope.

In taking down aerial cable, the reeling device before mentioned has been of great service. The empty reel is jacked up and arranged in the same manner as for taking up underground cable as it is pulled out. After fastening one end of the cable to the drum of the reel, the reeling apparatus is operated and the cable quickly and easily drawn out of the rings and reeled up in one operation. Of course if the cable is suspended by the old marline clips, it is necessary to have a man at each pole to pass the clips around the pole. One man on the reeling machine can pull down and reel up as much as six or eight spans of cable in one piece. This enables us to reduce the size of the gang and consequently the cost to a considerable extent.

At this point I should like to introduce a few figures showing the costs of a recent aerial cable job. This was a 50-pr. 16 ga. cable about 25,765 feet long, between Downingtown and Exton.

It was delivered in 800 foot lengths. The number of straight splices was 32; the number of

multiple splices—12. Eleven 10-pair and two 30-pair terminals were connected to this cable. All splicing was done without tests. The final test showed the cable to be O. K. in every respect. Not even a reversed pair was found.

Summary of Costs	Hours	Total	per ca. ft.
Labor, Bell	1330.5	\$455.031	.01766
“ Hired		69.20	.00269
Teaming		139.00	.00539
Traveling		29.88	.00116
Board		160.31	.00622
Incidentals		1.02	.00004
Total		\$854.441	.03316

I will not take up any more of your time talking about machinery—undoubtedly a dry subject to many. Before I close, however, I wish to make a few remarks about another side of construction work, and I think that these statements apply not only to all branches of our Company, but to other corporations as well.

No matter how perfect the apparatus used in the work may be, no matter how good the tools are, the cost of work will not be kept down to a minimum unless the working force is well trained, the individuals composing it contented, and their supervisors properly alive to the importance of and the proper methods for supervision. If a man makes a mistake, it is important for his supervisor to know or determine whether such an error is due to ignorance or carelessness. The treatment according to the circumstances should be radically different. If due to ignorance, the man should be properly instructed so that such errors are not made a second time. If due to carelessness, the man should be reprimanded in some way depending upon the gravity of the offense.

To keep our force up to the mark and to avoid grave errors as far as possible, we “take time by the forelock,” as it were, and look ahead. This is done through the Foremen’s Conferences which are held from time to time. At these meetings mistakes in reporting time and material, the proper methods of handling the work, etc., are discussed and as far as possible rules or regulations made, based on such discussions. It sometimes happens that the foremen, or their subordinates through them, make valuable suggestions at these meetings, and if they do not involve radical changes in methods, they are adopted. If they are of such a nature as require the approval of the higher officials of the Company, these suggestions are forwarded for such approval with an abstract of the advantages, brought out in the meeting attached.

The important points discussed at these meetings are recorded and a typewritten copy of them forwarded to each foreman.

A series of bulletins or circular letters are now written from time to time which give a general account of errors which have been made. Copies of these are sent to every foreman for his instruction and a file is furnished him for recording such letters.

No names are mentioned in these circulars, so that the offending party or parties are not unnecessarily humiliated.

Generally speaking, a supervisor cannot properly supervise his work unless from time to time he is on the job when his men report for work. Unless he visits them at their work he will not be able to see if the proper methods are used. This subject, however, is of so great importance that it is worthy of a separate paper, so I will not intrude upon your time and patience any further. In closing, I wish to say that what success we have obtained in construction work is due in a large part to the faithful and intelligent efforts of all our assistants, foremen and other subordinates.

Philadelphia-Washington Cable

THE American Telephone and Telegraph Company is just now engaged in installing an underground telephone cable between Philadelphia and Washington which, when completed, will not only mark a revolutionizing epoch in the history of long distance telephone communication, but will also effectually preclude a recurrence of the conditions that existed at President Taft's inauguration on March 4th, 1909, when Washington was completely isolated telephonically and telegraphically from the rest of the country.

The cable that is now being installed in an underground conduit, the major portion of which has only just been completed, will be approximately 135 miles long and will pass through Wilmington and Baltimore. These cities will thus be given the same insurance of unbroken communication with the rest of the country, that is to be afforded to Washington. This stretch of cable from Philadelphia to Washington, which is the first of a series of similar stretches that will ultimately form a continuous underground telephone and telegraph route from Boston to Washington, will be completed some time in the early fall of the present year, and when the rest of the projected work, which involves the expenditure of vast sums of money, is finished, the chances of isolating any of the important cities of the eastern seaboard from one another, or from the rest of the country telephonically and telegraphically will have been reduced to a vanishing small quantity.

When the need of a wholly underground telephone route from New York to Washington and from Boston to New York became apparent, in order to provide an adequate number of circuits to handle the growing business and to provide the insurance against interruption from storms which the catastrophe of March 4th, 1909, emphasized, the engineers of the telephone company were confronted by a problem such as had never before been broached for solution. This was the problem of providing commercial telephone circuits in cable for a distance of 235 miles and of an efficiency sufficient to permit of their being connected to the regular city and suburban plants at each end and give a satisfactory grade of communication between subscribers in New York and Washington or Boston. At the present time, the longest commercial telephone circuits wholly in underground cable are those between New York and Philadelphia, a distance of less than 100 miles, and it is a wide step indeed from this to the contemplated cable. How well the development and engineering work has succeeded may be judged from the fact that the cable now being installed between Washington and Philadelphia, when completed through to New York, will be of the same outward appearance and dimensions as the existing cable between New York and Philadelphia, and will provide a grade of telephonic communication between New York and Washington almost identical with that now furnished between New York and Philadelphia.

While the outward dimensions and appearance of the new cable are the same as that of the present cable between New York and Philadelphia, and while it contains copper wires insulated with paper and arranged in pairs, it is otherwise radically different from anything hitherto installed. The wires are larger than those now in use and are so arranged that from each two pairs of the large gauge wire it is possible to obtain simultaneously three complete telephone and eight complete telegraph circuits.

In addition, there are contained within the sheath a number of pairs of smaller gauge wire for use between intermediate cities along the route. These pairs of small gauge wire may also be used for telegraph purposes. All told, 148 wires arranged in 74 pairs and capable of giving 99 telephone and 296 telegraph communications simultaneously are contained within the 2 9/16" lead pipe, which forms the protective coating of the cable. As the cable, when completed between New York and Washington, will handle telephone and telegraph business to a number of cities along the route, it follows that when working full capacity the actual number of simultaneous telephone and telegraph messages being transmitted within the lead sheath that extends from New York to Washington may be many times these figures.

An idea of the stupendous character of this installation may be formed from a consideration of the amount of material of various kinds involved in its construction and installation. The section between Philadelphia and Washington that is now being laid, and which requires somewhat less than two-thirds of the cable needed to connect New York with the Capitol City, requires the making and handling of nearly 1,500 reels of lead-sheathed cable having a total weight of nearly 3,000 tons. To ship the cable from its place of manufacture in Chicago to the points of installation along the subway route will necessitate the use of about 120 freight cars. Each of these individual cables, averaging about 500 feet in length, must be drawn into an underground duct and 1,500 splices, involving more than a quarter of a million wire joints, must be made. To properly make the wire joints and hermetically connect the lead sheaths at each splice will take two men's time for an entire day, and this work can only be done in good weather.

Of the 3,000 tons weight of the entire cable, nearly 900 tons are contributed by the copper conductors, these 900 tons being in the form of more than 20,000 miles of wire. Nearly 1,700 tons are credited to the weight of the pipe sheathing, of which about 50 tons are in the form of pure tin, the remainder being lead.

The paper used for insulating the individual wires contributes about 140 tons, and is in the form of ribbon more than 24,000 miles in length.

At intervals along the cable the wires are connected through a peculiar type of coil made up by winding copper wire about an iron core, shaped like an anchor ring or doughnut. This core is itself composed of a multitude of fine iron wires, each insulated from all the rest by a special insulating coating. The coils which are thus inserted at regular intervals along the cable have the remarkable property of making the cable more efficient for the transmission of telephonic communication than if the wires of the cable were connected directly together. They are known as "loading coils" and are an invention which Professor Michael I. Pupin, of Columbia University, made some years ago.

Altogether nearly 10,000 of these loading coils in nearly 400 cast-iron cases are to be used between Philadelphia and Washington; the cast-iron cases equipped with their quota of loading coils aggregate about 200 tons in weight. Each case is provided with a stub cable for connecting the coil windings to the wires of the main cable, and the wire in these stub cables alone is more than 170 miles in length. To form the iron cores for the loading coils more than 17 tons of the best Norway iron has been drawn into 155,000 miles of wire. This wire, which is about the size of a horsehair and which, if stretched out in a single length, would reach more than

two-thirds the distance from the earth to the moon, has been covered with approximately 25 acres of the insulating material.

About the iron cores has been wound nearly 7,000 miles of insulated copper conductor weighing over 52,000 pounds. If anyone will take a doughnut or a curtain ring and attempt to wind a piece of string about it, threading the string down through the hole in the center, bringing it up around the outside of the doughnut, and repeating the operation a few times, and then remember that in the production of the 10,000 loading coils this operation has been performed 15,000,000 times, some rough idea may be had of the ingenuity of the machines which do this work at the rate of 75 coils a day.

While the laying of this cable is only just beginning commenced in the field, preparations for its manufacture have been going on for more than six months. An entirely new plant for the manufacture of the cable and loading coils had to be constructed at the works of the Western Electric Company in Chicago, stocks of raw material had to be accumulated and full preparations made for turning out the cable and loading coils at a rate to allow the field force to install more than two miles of finished cable per working day. The iron wire for the loading coils alone represents the entire fine wire output of a large wire drawing plant for more than eleven weeks, and has meant the making of innumerable diamond dies. As similar loading coils are used in large quantity for other work, it will be readily appreciated that the wire manufacturers had to commence work far in advance of the actual manufacturing needs for their product; so, too, for the manufacturers of the copper conductors and the makers of the miles of paper ribbon needed to insulate these conductors.

When the work of installing the cable has been completed, all outward visible signs of its existence or the activities which led to its inception and production will have disappeared, and the only evidence of its existence, so far as the public is concerned, will lie in the unbroken telephone and telegraph communication which it makes possible.

Further Grouping of Bell Companies

It is stated that in furthering the work of more closely associating various groups of Bell companies throughout the United States, five middle west companies are being brought under one group of officers with headquarters in Chicago. These companies are the Chicago, the Central Union, the Cleveland, the Michigan State and the Wisconsin.

The following officers have been announced: President, B. E. Sunny; Vice-President and Treasurer, Alonzo Burt; Secretary, C. E. Mosley; Vice-President, B. W. Trafford, in charge of Commercial Department; General Auditor, B. S. Garvey; Engineer, J. G. Wray; General Counsel, L. G. Richardson; General Manager, H. F. Hill, in charge of Plant and Traffic Departments.

The territory covered is about 250,000 square miles in the states of Illinois, Ohio, Michigan, Indiana and Wisconsin. The population is over 18,000,000, and the present telephone development about 1,250,000, with 23,000 employees.

It is expected that the identity of the various companies will continue to be maintained, but that the election of one group of officers will aid in further standardizing the operating methods.

Baltimore Division**J. R. MOFFETT, Division Correspondent**

Baltimore District. The firm of Hynson & Westcott, of Baltimore, conducts a drug store which it terms a "Professional Pharmacy." It is an unusual business because of the absence of many kinds of goods ordinarily found in pharmacies. No patent medicines, cigars, soda, confectionery or toilet articles are sold. The business is confined to the compounding of prescriptions and the sale of sick-room requisites. This house has shown an unusual conception of the real use of telephone service in the conduct of its business. The extracts from one of its recent booklets which are quoted below might well be used as a guide by druggists everywhere:

THE TELEPHONE

This still wonderful appliance answers no better purpose than the helpful services it renders in calling the physician and in sending orders to the pharmacist. Not as yet has its usefulness been fully realized for the latter purpose.

We believe, when it is convenient for the doctor to use one, the telephone is the most satisfactory means he can employ to transmit his prescriptions to the pharmacist, who, in this direct way, can understand exactly what the physician wishes his patient to have. We have all such orders carefully called back to the prescriber, which insures absolutely correct transmission.

Following this the telephone equipment of the establishment is described and instructions are given for calling the firm's several branches at all hours of the day or night.

The Baltimore *Sun* of May 3 relates an amusing anecdote of a man who lost his hat while lunching in a local café:

While the hero of the story was drinking his cup of black coffee he observed a man walk over to the hat hanger, take a hat from it and go out. When he had paid his check and the waiter brought him the only derby remaining on the hanger he was much surprised to find it a strange article.

The other man had taken his hat.

"Do you know anything about the gentleman who was sitting at the next table and who has just gone away?" inquired the bereft one of the waiter.

"Ah doan know his name, sah, but Ah heahs dat he is some sort of 'tractor,'" replied that person.

"What sort of a contractor?" persisted the man.

"He builds houses and sech like," answered the waiter, thoughtfully.

The man looked into the hat which wasn't his and found within the initials, T. C. J.

"Bring me a telephone and a telephone book," he commanded.

The waiter adjusted one of the movable telephones to a connection nearby, and put the instrument on the table. Then he handed over a telephone book.

The man turned to the list of contractors and ran his finger down it until he came to the J's. He soon found a man whose last name began with J and whose initials were T. C.

He noted the number and asked exchange for it. "Is Mr. Jackson there?" he inquired when the connection had been made.

"Yes," answered a voice.

"May I speak with him?" asked the man.

And so Mr. Jackson came to the telephone.

"Pardon me," said the man, "but did you just take luncheon at the ——— hotel, and did you

by mistake carry away the wrong hat, one with the initials W. H. C. in it?"

"By George, but this is queer," answered Mr. Jackson. "I did that very thing ten minutes ago. I thought the hat felt queer, but I have only this moment discovered my mistake. Are you 'W. H. C.?' Well, I'm glad you called me up. If you will stay at the hotel for ten minutes I will send my office boy around with your hat and he can bring mine back. Good-bye."

"Take it all in all we live in an age of conveniences," said the man, and hung up the receiver.



A Baltimore Druggist's Window

The accompanying picture conveys but a faint idea of the elaborate telephone display in the store window of Williamson & Watts, Druggists, 17 W. Lexington Street, one of Baltimore's busiest thoroughfares.

The window dresser for the above firm, with the aid of a plant department employee, arranged the display. It has proved to be a most unique and effective advertisement, both for the Company and the drug firm.

A subscriber who has an advertisement in the present issue of the Baltimore telephone directory recently called an employee of the Company by telephone to request that his ad be discontinued. He stated that his returns have been so great that to continue it during the summer, his busiest season, might place him in the position of being unable to fill orders and in that way prove a "boomerang." His reason was so pleasing that his request was granted with little argument.

During a recent conference held at Frederick by the Plant and Commercial Departments the question of selling extension bells on four-party lines in exchanges with superimposed current was brought up. The Commercial Department had received an order to sell extension stations in Brunswick but nothing was said in this order about Frederick. When the local agent saw the Plant Department's order, which allowed four-party extension service with Bell in Frederick also, he said, "Why, I can get a dozen extension station and auxiliary bells in this place to-morrow." He made good his statement the next day, and as a direct result of this conference the revenue of the Company was increased \$48.60 per year.

Due to the fact that the commercial agent at Frederick has been educating the subscribers to pay all telephone bills at the Company's office, he has been given the nickname of "Come and Pay" for "C. & P.," the abbreviation of Chesapeake & Potomac Telephone Company.

Washington Division**R. G. HUNT, Division Correspondent**

Considerable interest has been aroused in this vicinity over David Belasco's new production, "The Woman," a play in which practically all the action centres around a private branch exchange operator. The evident object of the writer of the melodrama, William C. de Mille, is to show the extent to which the telephone dominates and controls the destinies of men and women.

The following item appeared in a recent issue of the Washington *Star* among the Alexandria correspondence: "The new fire alarm telephone was installed at police headquarters at noon today and will hereafter be used in sending in alarms to the various engine houses."

The Stafford apartment house, at 1769 Lanier Place, has signed for private branch exchange service with 2 trunks and 17 stations. Sanner & Hill have contracted for private branch exchange service, with 2 trunks and 12 stations, for a new apartment house on O Street between Fifteenth and Sixteenth. The Franklin Laundry Company, which has heretofore used a direct line with an auxiliary station, has changed to private branch exchange service with 2 trunks and 5 stations.

The following item has appeared in many local papers. It suggests a distinctly new use of the telephone, but as to whether it should be used as a selling point is questionable.

"Henry Myers, Superintendent of the Waseca telephone system, keeps chickens and feeds them by telephone. He has fixed up a box in the chicken house with a drop door in the bottom of it. In this he places feed. The catch that holds the door in place is a sensitive affair, and is connected to the telephone system. When 4 P. M. arrives Mr. Myers sticks in a plug and presses a button the same way operators do when they ring up your home or place of business.

"Then the catch on the feed box moves back, the door drops down, the feed falls to the floor, and the chickens are fed."

An advertising contract for a display page in the June issue of the local directory has been obtained from the Portner Apartment House Company. It is the purpose to advertise in this space one of this firm's new apartment houses. The matter is noteworthy in that it is the first apartment house advertisement that we have ever received.

The following is a specimen letter similar to those sent to prospective coal buyers by a prominent Baltimore sales agency:

I am in a position to make you an attractive offer on Katherine Lykens Valley Red Ash Nut, Stove and Egg coal. Should you be in the market for either this coal or White Ash coal, I will gladly pay the costs of a telephone order any time you are in a hurry and wish to save time. There is always some one in this office who can quote you current prices and give you efficient service.

Trusting to receive one of your valued orders in the near future, I am

A robbery was averted in Martinsburg one evening last week by means of a telephone. A woman in her home heard a noise on the back porch and upon investigating found a man trying to effect an entrance. Being equipped with telephone service she immediately called police headquarters and had the intruder arrested.

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Pittsburg District. The telephone coupon book of one of the Company's Pittsburg patrons bears the following admirable paragraph on its cover:

"It is with pleasure we offer you the advantage and use of these coupons, as they save *you time* writing a long letter—and *us time* reading and answering it, etc.,—all of which can be accomplished much more satisfactorily to both by a few moments' talk on the telephone."

On April 28 a bronze tablet commemorating the services rendered by the United States Military Telegraph Corps was unveiled at the Soldiers' and Sailors' Memorial Hall, Pittsburg. The tablet is 9 by 4½ feet, and bears the faces of 28 members of the corps set in relief along the border. Capt. T. B. A. David, for many years President of the Central District & Printing Telegraph Company, is one of the members whose portrait is shown.

The Martin School, Inc., of Pittsburg, has just installed a No. 101 board and several stations in its quarters on Fifth street. The school, which gives instruction in stenography and other business subjects, has just originated a department for instruction in telephone operating. The department is designed to teach the student the principles of private branch operating. Miss Jackson, the Pittsburg District Chief Operator, recently read a paper before the school and accompanied the reading with a thorough explanation of the equipment recently installed.

Butler District. The "Hello" Girl is the caption of an editorial printed in the April 21 issue of the Butler Eagle. It is similar to a number of others of like tenor now appearing, which show a growing appreciation of the operator's difficulties.

STEWART.

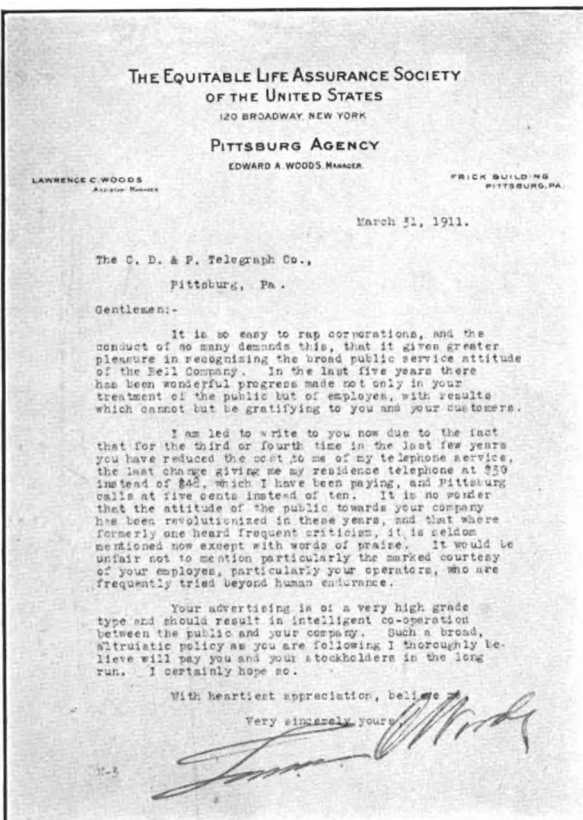
Greensburg District. An exchange was opened recently at Beaverdale, in the Johnstown sub-district, with about 50 subscribers.

A Plan "A" rural line agreement has been closed with the Fayette Rural Telephone Company, its lines to go into our Exchange at Scottsdale, Pa. The Fayette Company will begin operations with 50 subscribers.

District Salesman Theurer has obtained an application for private branch exchange service from the Hotel Monahan at Greensburg, Pa. The equipment will consist of a switchboard, 2 trunks and 20 stations.

HUGUS.

Uniontown District. The Pittsburg Hydraulic Company is placing an enormous dam across Big Sandy Creek at Rockville, W. Va., about thirty miles out of Morgantown. This dam will create a lake covering some 4,000 or 5,000 acres and over 7 miles in circumference. The potential energy of the water will provide power for generators and the electricity will be transmitted over the States of West Virginia and Pennsylvania. On account of the low rate at which the company will be able to furnish light and power, it expects to write contracts with a majority of the manufacturing concerns located in the two States. Representatives are now at work interviewing all southwestern Pennsylvania and West Virginia manufacturing companies. The interviews are made by Bell telephone. A representative of the Pittsburg Hydraulic Company stated the other day that the Bell directories are



the only sources for prospects used by his firm, and that seldom does he find prospects that are not listed in the books. He added that this method of telephone interviewing was saving many dollars for his firm and that it made possible a completion of the work in record time. One of the agents of the Company recently interviewed a good share of the manufacturing companies in Point Marion, Morgantown, Kingwood, Fairmont, Rowlesburg and Terra Alta, from the Central Office Pay Station at Morgantown, W. Va. He accomplished this work in less than two hours.

W. L. Leamon, Managing Editor of the *Uniontown Evening Genius*, is the author of an interesting article bearing the heading "How Would You Like to be the 'Hello Girl?'" This story is one of a number which have been appearing recently in the medium mentioned. All of them show a keen appreciation of the telephone operator's trials.

One of Uniontown's news writers ran across the following experience, and this is what appeared in his journal the next day:

"You have to take off your hat to the Bell Telephone Company," said a Uniontown man this morning. "It has a system it uses in locating people that very seldom fails if the party wanted is in the city or town called. On numerous occasions the Bell Company has located travelers for me, but Saturday morning I was given the surprise of my life. The party I wanted was a guest at the Fort Pitt hotel. It was his first visit to Pittsburg. I knew he was to leave early in the morning and it was important that I talk with him before he left Pittsburg. The only thing I could do was to call the Fort Pitt. He was not there. Then I told the operator that he was to leave Pittsburg on a morning train and I was informed that an effort would be made to locate the party. To my surprise, in less than a half hour after my first call, I was connected up with the man at the Pittsburg & Lake Erie station on the South Side, just a few moments before he was to take a train for Cleveland.

CAHOON.

New Castle District. The McKean Telephone Company, of McKean, Pa., has voted to change its long distance connections from the Mutual Company to the Bell Company. This reverses the previous decision that designated the Mutual Company as the long distance connecting company.

HARPER.

Wheeling District. C. P. Gallaher, Traffic Engineer of the Pittsburg Division, read a paper at the meeting of the Telephone Society of Wheeling, April 21.

Salesman Brennan has closed a private branch exchange contract with the Marshall County Bank of Moundsville, W. Va.

An extensive selling campaign has been inaugurated in Parkersburg, W. Va.

The recent acquisition of Dalzell by the Lower Salem Farmers' Telephone Company will give the Bell system about 200 new connections.

The Construction Department has completed the new Steubenville-Weirton and Marietta-Caywood lines. The Steubenville-Weirton is a toll line and furnishes leased wire service to the Phillips Sheet & Tin Plate Company at Weirton. About 30 rural line subscribers and the Turkey Foot Telephone Company will connect with our Steubenville exchange by means of this new line.

On a recent rainy day an opposition subscriber at Cambridge, O., tried unsuccessfully to call a local hardware store from the automatic station in her home. On account of the crossed lines the subscriber's ring had gone astray and a signal was given on our switchboard. In response to our operator's "Number, please," she gave the opposition call number, which was without a letter. This brought "information" in on the line. The situation was quickly grasped and explained to the person calling, who at the same time was given the desired connection. She then talked over the weather-joined lines of the Bell and opposition companies.

HEALEY.

Talked to Denver

On April 12, Mr. U. N. Bethell, our President, entertained the New Jersey Cliff Dwellers in his home at 270 Mountain Avenue, Montclair, N. J. Telephone conversations were held between his home and Newark, Boston, Detroit, Chicago and Washington.

Special apparatus and special circuits were provided to improve the transmission and well-known men talked from the various points.

A feature of the evening was a telephone connection between Montclair and Denver—twenty-two hundred miles. Telephone service between Denver and the east has been the engineers' dream for a long while, and only recently have experimental calls been made between testing offices in New York and Colorado's capital.

The complete circuit is stated to have been made up as follows: Between New York and Chicago a loaded phantom No. 8; between Chicago and Omaha a No. 8 ordinary loaded circuit; between Omaha and Denver a loaded phantom No. 8. The work involved the climbing of approximately 90,000 poles between New York and Denver and replacing glass with porcelain insulators; every 8 miles from one to three loading coils were placed. While the public has for some time been using the Bell between Denver and Kansas City, Chicago and St. Louis, conversations from the first named city and points further east have not been possible. There are now two circuits to Denver, one via Kansas City—built about five years ago—and the other via Omaha—constructed comparatively recently.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Camden District. During the month of April the Company has extended its plant from Thirty-second Street to the city line, Camden, and 3,000 feet of new cable has been strung.

Plans have been approved and work is now being done on new lay-out of aerial cable for South Camden for that portion between Mickel Street and Kaighn Avenue, South Second Street and Broadway.

On April 22 was completed 2,000 feet of 30 pair, 22 gauge aerial cable and the setting of 20 poles on and along Central and Glen Avenues, Laurel Springs. This additional plant will make it possible to take care of the business of half the town.

CROXTON.

Dover District. Senator Drexler, who has a summer home at Bethany Beach, on the Atlantic coast in Lower Delaware, was able to give first aid to the injured the other day when a three-masted schooner was blown high and dry upon the beach near his home. The vessel was considerably damaged, but by prompt aid summoned by telephone it was saved from total loss. Bethany Beach is being developed by Pittsburg capital and promises to become a popular resort in the next few years because of its excellent beach front.

A subscriber in lower Delaware recently gave orders not to have his telephone called on Sunday. He refused to answer it on the ground that it was a desecration of the Sabbath.

Considerable feeling developed between two subscribers on a certain rural line running out of Dover recently, on account of Mrs. A. recognizing the "crow" of a rooster owned by Mrs. B. while she (Mrs. A.) was having a confidential talk over the wire with a neighbor. Mrs. A. claims the evidence is sufficient to prove Mrs. B. had the receiver off and was listening to her conversation.

The Viola Rural Telephone Company, a Plan "C" with 10 subscribers switching at Felton, was recently "signed" by Salesman Wootton on a single day's canvass. The prospects were canvassed during the day and the Company organized the same evening.

PRINCE.

Doylestown District. The Franklin Telephone and Telegraph Company, sub-licensee, operating an exchange in Springtown, Pa., is building several additional miles of line and installing service for a number of new subscribers.

The new toll line which is being constructed to connect with the Ferndale Rural Telephone Company has been completed as far as Ferndale, Pa. The local Company is making rapid progress with the running of its wire and installing of instruments and expect to have subscribers connected in a very short time.

HENNESSY.

Trenton District. Another superseding effort has been successfully terminated in the Trenton District office. The case referred to is that of a private branch exchange of 42 stations which had an obsolete sub-station and trunk rate. It has been placed on standard basis with the addition of 3 sub-stations.

Private branch exchange development in Trenton received another impetus with the closing of a contract with the Tattersall Coal Company for a switchboard, 3 trunks and 8 sub-stations.

This system links into one the various detached coal yards and offices of the company, allowing them to receive all orders for material at their main office.

A new application has been obtained for tele-

phone service from Princeton University which embodies radical changes and improvements in their present equipment and class of service. The old contract of 70 stations and 12 extensions has been supplanted with a No. 1 private branch exchange system consisting of a 2 position switchboard equipped for 20 trunks and 200 lines. The initial contract calls for the installation of 82 sub-stations and 13 extension stations.

This contract is somewhat unique because of the heavy mileage charges involved, as many as 30 stations being located at a point more than one-half mile distant from the location of the switchboard.

The completion of the proposed Graduate School, to cost \$3,000,000, will greatly enlarge this system and it is estimated that 150 sub-stations will be working on this switchboard upon the completion of the new building.

The Plant Department demonstrated its ability to do a quick and unusual job upon the occasion of the visit to Trenton of the Manufacturers Association of Philadelphia, on the tour of May 2, 1911.

Within 2 minutes after the special train was placed on its siding, the Plant Department had run to the car and connected up 2 direct line exchange telephones. This permitted the occupants of the car to enjoy telephone service during their stay of about two hours.

Wilmington District. The Delaware Candy Company which has been exclusive opposition service users for the past 10 years, has signed an application for a cordless board and 6 stations displacing 4 opposition telephones.

Arrangements have just been completed with the Wilmington Gas Company to use the cut "Special Attention to Telephone Orders" on all of its circular advertising. This firm delivers 8,700 bills each month and attached to each bill is a circular advertising gas stoves, hot water heaters, etc. It has a private branch exchange and has assigned a salesman to attend strictly to telephone inquiries.

A recently married man in this vicinity gave his wife the preference of a telephone or a servant. Without hesitation she chose the telephone. The husband argued that a telephone could not clean floors, make fires, and do many other duties. The wife, however, said it was never late in the morning or had to be "waited up for" at night, and could run errands without taking curl papers out of its hair. As usual, the woman prevailed.

P. C. Hansen, proprietor of the Delaware Garage Company reports an inquiry over the telephone as to whether he thought there was much difference in the operating of a car he had for sale and a car that the caller had been operating for the past two years. On being assured it was practically the same he was requested to send his demonstrating car out and the next morning another telephone call closed the deal for an \$1800 car.



SUBSCRIBER coming into the Wilmington office to pay a bill noticed the cashier receipt the same with her left hand. Seated at a desk was a Line Order Clerk making up a report, also writing with her left hand. A Collector was making out collection slips; he too was left-handed. After looking over the office carefully he remarked to an attendant, "Well, I knew the Bell Telephone Company made a pretty thorough study of economy, but when it is so far-sighted as to hire left-handed clerks to wear down pens that are used by right-handed clerks, it certainly is going some."

CHAMBERS.

Philadelphia Division

D. J. CLEARY, Division Correspondent

In order to facilitate the handling of the 700 or more participants in the amateur play, "Professor Napoleon," which recently was produced at the Metropolitan Opera House, a unique system of signal bells and telephones was installed. Every part of the stage was connected with the electricians in the balcony, who could direct those on the stage in such a manner as to get the best effect. In much the same way the musical director and all the dressing rooms could communicate. This is probably the first instance in which the telephone has been such an important factor in the management of a play of this character in Philadelphia.

Another evidence of the varied uses to which the Company is put is shown by the following inquiry:

Could you tell us if either Mr. Christian Barth, or the Automatic Gas Engine Company, has applied to you for telephone service. We would like very much to get in touch with this firm for the purpose of soliciting its orders for new machinery.

Thanking you in advance for any favor you can show us, we are, etc.

Prior to May 1, but 8 per cent. of the Philadelphia-New York telephone traffic, originating in Philadelphia, was on a two-number basis. On May 1, the day the new rate went into effect, it jumped to 18 2/10 per cent. and by Friday, 5th, it had reached 24 per cent.

Main Line District. Upon interviewing a subscriber who was building a large country place at Devon, and who had had installed a No. 2 private branch exchange, it was learned that the subscriber had been disgusted with the work done by the various workmen on his house. He said he had a year of vexation and delay, but that the one bright spot in the whole building operation was the efficient work done by our local branch exchange installer. He found this man, he said, to be intelligent, capable and cleanly.

On April 1 a direct line residence contract on the Newtown Square Exchange located two miles from the Central Office was given up, as the subscriber had moved. F. G. Klénker, salesman in that district, obtained at once 5 applications for farm line service, thereby utilizing this line which might otherwise have been idle for some time.

The following applications for private branch exchange service have been obtained recently in this district:

SALESMAN.	TYPE.	TRUNKS.	STATIONS.
Pounds	No. 2	2	14
Pounds	No. 1	2	26
Devereaux	No. 2	2	5

An appreciative West Philadelphia subscriber wrote this note of thanks to the Company:

We are more than thankful for your kind and prompt attention and action in reinstalling our telephone.

We are aware it was no fault of yours that our line was put out of service, but only due to a neighbor removing a small junction box on the rear of her house, thus disabling all lines in our block.

The reason why we write this note is simply because the messages we have been receiving have been on matters of life and death, and very important to us.

Thanking you again, we remain, etc.

BURT.

Organization Changes

C. E. Bryan has been appointed Division Manager of the Baltimore Division and a rearrangement of the territorial organization of that division has been made effective as of May 1.

To the Division Manager now report the Contract Manager and the Cashier of Baltimore City and one District Manager, C. H. Weber, who has supervision over all territory in that division outside of Baltimore City.

The following now report to the District Manager: *Local Managers*

C. G. Dodge, Cumberland, Md.
O. H. W. Hunter, Hagerstown, Md.
C. L. Clemson, Annapolis, Md.
A. C. Allgire, Westminster, Md.
M. E. Gerber, Havre de Grace, Md.
G. H. Fulmer, Salisbury, Md.

Agents { C. B. Rever, Pikesville, Md.
H. C. Andrae, Ellicott City, Md.
F. A. McNally, Towson, Md.

A. S. Townsend, Combination Man, Baltimore, has been transferred to Cambridge, Md.

G. B. Garwood has been transferred from Philadelphia to Trenton and appointed Chief Clerk, Trenton District Manager's Office.

W. J. Edwards, Clerk, has been transferred from the Plant Supervisor's office, Pittsburg, to the Plant Superintendent's office, Philadelphia.

S. E. Warrick, Stenographer in the Division Manager's office, Pittsburg, has been appointed Chief Clerk in the Butler District Manager's office.

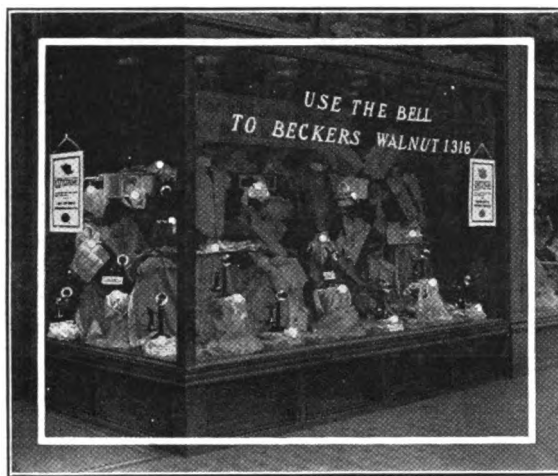
Effective May 4, W. H. Fetter has been made Chief Clerk, Germantown (Philadelphia) District Manager's office.

Business Office Time Savers

In the Central District Commercial office—formerly the Down-Town office—at 1230 Arch Street, Philadelphia, a new plan of wiring the stations connecting certain supervising desks is now in operation. A private line connects the desks of the District Manager, Chief Clerk, Cashier, clerk in charge of contract files, clerk in charge of uncompleted work files and the Chief Automatic Collector. By raising the receiver of one of these special telephones and pressing the button according to a code signal any one of the other stations on the line may be reached. The actual signals are similar to single taps of a bell.

In addition to this service private lines also connect the three outside collection offices at 17th and Diamond Streets, 1705 South Broad Street and 52d Street below Lancaster Avenue directly with the respective cashiers' unit at 1230 Arch Street. Inasmuch as all information regarding bills is on file only at 1230 Arch Street, the need for frequent calling on the part of the outside cashiers may be easily appreciated. The fact that each outside cashier usually has need for communication only with *his respective unit* minimizes the possibility of the private line being busy when needed. Calls through the official board are greatly lessened and the time saved during an average day by this private line service is surprising. Much unnecessary jumping up from the desks and the consequent confusion is precluded. The plan has helped to make possible the comparatively comfortable arrangement of a much larger force in a space which was none too large before the office forces were combined.

The equipment is quite independent of the regular branch exchange stations connecting every desk with the official board. The latter telephones are signaled by means of buzzers instead of the ordinary bells, thus lessening the noise when the stations are repeatedly called. In



A Philadelphia Window Display

The use of the telephone in ordering men's furnishings was effectively suggested in a window display used in the Mint Arcade store of the Becker Company, Men's Wear, Philadelphia.

Twelve telephones were arranged close to the glass, the green cord from each leading to displays in the rear of the window, and Tungsten lights were placed in pairs,—one at each telephone and at each of the corresponding displays. These lights were made to flash in pairs, so as to give the effect of calls from the various telephones for the goods displayed in the rear. There was one large sign with the inscription, "118,000 Telephones in this Vicinity are all doors to this Store," and another, "For all that men wear—Use the Bell to Becker's; Walnut 1316."

The latter phrase was also used on small cards throughout the window and white letters cut from cardboard with the same suggestion were hung in lines across the window. At one end a display card read, "A delivery service at 100 per cent. promptness makes buying over the telephone the busy man's ideal method. The goods are on the way in a jiffy. Use the Bell to Becker's; Walnut 1316." At the other end a similar card read "A record of your sizes is kept on file, and buying over the telephone is especially convenient and satisfactory when you cannot come to the store in person."

The day after this display was placed, the Becker order clerk, in answering a telephone call, was thus addressed: "Oh, I don't want Becker's, but had your number in mind and called it by mistake." And a day or two later, a prominent banker called the store and asked to have one of the salesmen call at his office with samples of some hosiery that was used in the display. Half an hour later the salesman returned with an order for \$54 worth of hosiery.—the largest order for a single article received at this store in more than a year.

In addition to the ringing of the buzzers, opaque signal lamps burn in the center of the flat-top desks until the receivers are lifted. Switching keys permit the answering, from any station in a certain unit, of calls received at any station in that particular unit.

To facilitate the prompt handling of incoming mail, return envelopes enclosed with bills are numbered from 1 to 8, corresponding with the collection units. By this means each of the eight cashiers may receive and arrange the morning's mail in a very brief time.

An envelope-opening device clips the top or end in a fraction of the time required by a clerk with the ordinary hand envelope opener. A sealing machine, which is also worked by hand, aids in the closing of thousands of receipted bills.

Telephone Societies

The Philadelphia Telephone Society

1420 Chestnut Street. June 6

Speaker: M. H. Buehler, Auditor.

The Telephone Society of Baltimore

Officers for the ensuing year were elected at the May 3 meeting:

President: H. P. Shaffer.

Vice-President: F. S. Whitman.

Secretary: J. R. Brohawn. Treasurer: L. D. Mahon.

Executive Committee: S. J. Blight, F. E. Bullock and C. O'D. Lee.

The addresses of E. L. Mattice on "Rural Lines" and W. A. S. Onion were entertaining and instructive.

Western Pennsylvania Telephone Society

Board of Trade Hall, Harrisburg

May 15

Speaker: P. L. Spalding, Second Vice-President and General Manager.

The Telephone Society of Washington

722 Twelfth Street, N. W.

On May 4, J. S. Wiley, Assistant Comptroller, American Telephone and Telegraph Company, New York, presented a paper on "The Functional Treatment of Accounts."

Comments were made by Messrs. Corrigan, Burton, P. C. King, Stabler, Peyton, Daw and W. E. Humphreys.

It is expected that Mr. Wiley's paper will be published in THE TELEPHONE NEWS.

The Transposition Club

Hotel Henry, Pittsburg

May 23, 6 o'clock

Northern Pennsylvania Telephone Society

The second annual banquet of this Society was held at the Hotel Redington, Wilkes-Barre, April 20, attended by 107 members and guests.

Among those who responded to Toastmaster J. H. Crosman, Jr., were N. Hayward, S. E. Gill, T. R. Gleim, H. L. Badger, C. P. Williams, E. G. Simons, S. W. Brown and G. R. Shaw.

An orchestra and a Victrola aided in making the evening enjoyable.

The table decoration was very attractive. Sixteen blue bell globes and a miniature pole line decoration were perhaps most noticeable. A conversation was represented as being carried on between a man at one end of the table and a woman at the other. The design was by B. J. Boyd, of Wilkes-Barre, and the execution by F. G. Strock, of Scranton.

Atlantic Telephone Society

14 South New York Avenue, May 16

Subject: "Circuits."

Central Office—Joseph Callahan.

P. B. X.—J. W. Connor. Sub-station—J. Mulligan.

Also "Toll Line Maintenance"—J. Farrish.

The Spare Pair Society

Odd Fellows' Temple, Philadelphia

May 17, 8 P. M.

Speakers: H. N. Reeves and H. Hamilton.

Subject: Various Installation and Maintenance Methods.

THE TELEPHONE NEWS



MARTIN H. BUEHLER

AUDITOR

The Bell Telephone Company of Pennsylvania and Associated Companies

THE FUNCTIONAL TREATMENT OF ACCOUNTS*

J. S. Wiley, Assistant Comptroller, American Telephone and Telegraph Company, New York

PENNSYLVANIA claims another of the officers of our Company both in birth and education. Our Auditor, Martin H. Buehler, was born in Harrisburg in 1861, and received his education in the Harrisburg Academy, a college preparatory school. In 1882 (the fiftieth anniversary of the institution) he was graduated from Pennsylvania College, at Gettysburg, of which he is now a trustee.

In December of the same year he became Secretary and Treasurer of the Southern Pennsylvania Telephone Company, and therefore may claim membership as a telephone pioneer of America. A month later, on January 1, 1883, that Company's name was changed to The Pennsylvania Telephone Company. The Company at that time was not large, as may be judged from the fact that Mr. Buehler, with one assistant, took care of the billing of all subscribers and the Company's official correspondence and finance, as well as the collections in Harrisburg proper. The only other department, "General Manager's," obtained new business, secured rights of way, installed and maintained the plant, operated the stations and, in addition, collected the accounts of all subscribers outside of Harrisburg.

Eleven years later, 1893, Mr. Buehler was elected General Manager. As that Company's territory was enlarged by the merging of several other companies, including The Central Pennsylvania Telephone and Supply Company, with headquarters at Williamsport, he continued in that position until March, 1902, when he succeeded D. F. Henry as General Manager of

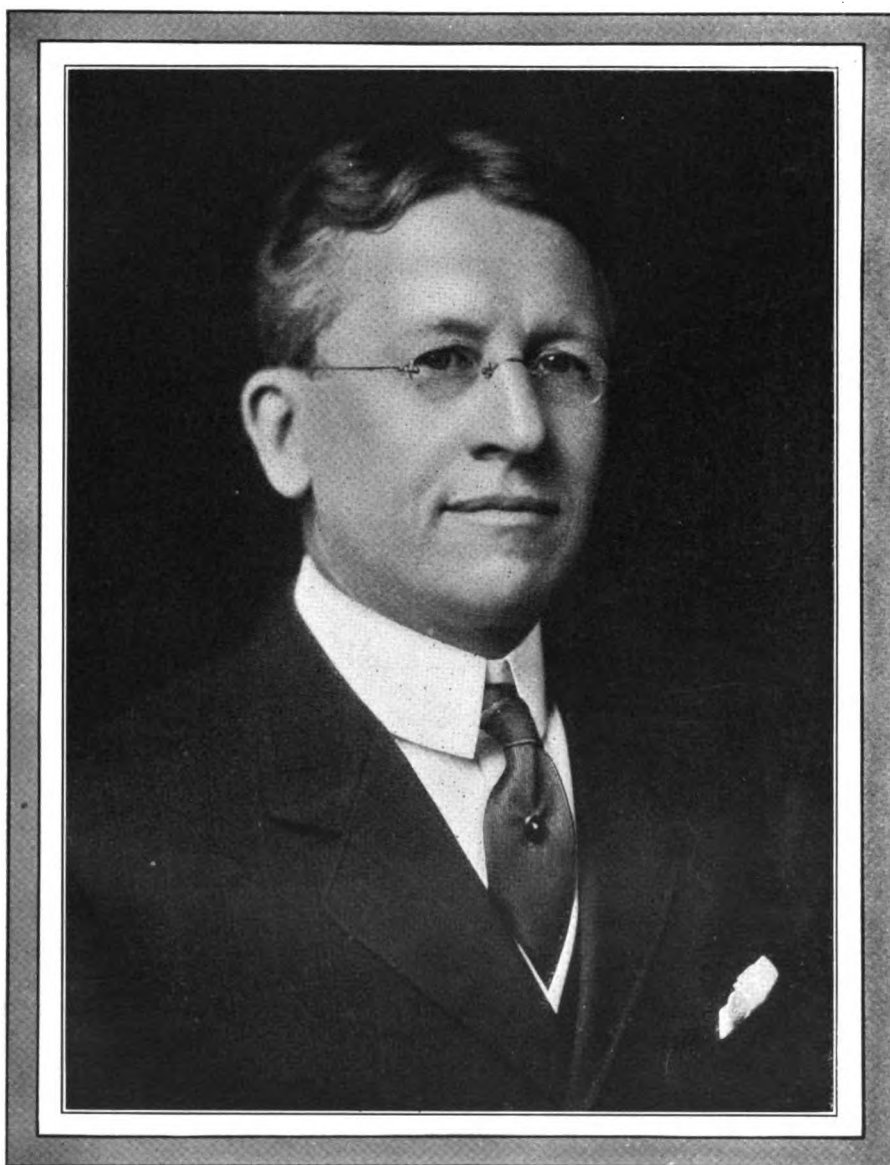
The Central District and Printing Telegraph Company at Pittsburg.

On April 1, 1910, Mr. Buehler was elected Auditor of The Bell Telephone Company of Pennsylvania and Associated Companies, covering the territories of all the companies in whose interests his experience had been

for judgment of the future and plans regarding it. The law also is much concerned about this early trader—whether he can be taxed, fined, sued, etc., *i. e.*, whether he is financially responsible or not. Solvent or bankrupt is the eternal riddle of business affairs, and each man's ac-

*A paper read May 4 before The Telephone Society of Washington.

(Continued on page 8)



IN considering the opportunity of addressing you this evening, I consulted at some length with the organization immediately associated with me. After reviewing rather carefully the results of certain recent observations and studies, we decided that the topic announced might possibly be of general interest to those working in the telephone business. It seemed feasible as embodying certain principles found to be fundamental in our own line of work, while having also a direct bearing upon the activities of the other, and (in the opinion of some of you) the more important departments. My subject, "The Functional Treatment of Accounts," has been developed with this thought in mind—which fact explains, I hope, the general or extensive manner in which the paper is written.

It is a commonplace of the text-books that accounting may be defined as the recording of monetary or financial transactions. This view is as old as Babylon and brings up at once the picture of the trader or barterer who must pay goods or money to other men, and who expects still other men to pay him. The accounts might be kept on bricks of baked clay, on sheepskin, wax or ivory, or merely remembered, but there must be accounts as a basis

The Telephone News

Published the first and fifteenth of each month in the interests of
 The Bell Telephone Company of Pennsylvania
 The Delaware & Atlantic Telegraph & Telephone Co.
 The Central District & Printing Telegraph Company
 The Chesapeake & Potomac Telephone Company
 The Diamond State Telephone Company



U. N. BETHELL, President
 F. L. SPALDING, Second Vice-President and General Manager
 W. R. PEIRSON, Secretary
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Vol. VII JUNE 1, 1911 No. 11

"The Sense of Life"

"The thing I most admire in your Company is its sense of life."

A comparative stranger to telephone circles said these words. He spoke of the Company of which each of us is an integral part. His business, it seems, requires an occasional visit to a certain district office and affords one of a critical turn of mind an opportunity to form an unbiased opinion of the way the work is carried on.

The sense of life! The phrase had a peculiar fascination for the telephone man who heard it. It refused to leave his mind. Was it true or imagined? If true, where could it be found; in one particular branch of the business—or in all branches?

The upshot of his thinking was a little inspection trip—a search for the sense of life.

First he visited a Plant Wire Chief's office. Ringing bells and throbbing buzzers greeted him. Generators were humming their familiar song. The long relay racks were alive with the mysterious clickings that hint at the bustling operating room above. "The source of power—the very heart of the thing is here," he told himself.

Then he ascended into the operating room. It was the busy hour. Fingers and plugs were flying. Lights were flashing. Keen-eyed supervisors paced their beats at a quickened step. The peak of the daily load was at hand. The steady murmur of trained voices mingled with the snap of ringing keys and released cords. Here too was life in plenty—the manual part of the entity, as it were.

Finally he passed on to a Commercial office. Clerks were waiting on patrons at the counter. Public station attendants

were assisting other patrons to get in touch with friends and business associates. A battery of typewriters was clicking away at full speed. Even the messengers moved swiftly as they passed in and out of the room. As far as the actual handling of customers is concerned it seemed the brain of the whole affair. And by no means did the brain seem asleep.

The inspection went no further. The inspector felt convinced of the truth of the critic's remark. There was a very evident spirit of animation in each of the three main branches of the industry.

The original question was now answered but another arose in its place. "What is this sense of life; what is it worth?"

A dictionary gave him a number of definitions. It spoke of the state of being alive, vitality, energy, vigor, spirit, and so on. They were all good meanings, no doubt, but they seemed inadequate. Turning away from the bulky volume, he called an office colleague and put the question to him:

"What do you understand by the word *life*?"

"*Life*? What do I understand by it? To me it means the ability to keep going and to grow."

Then, and only then, was the investigator fully satisfied. There was a sense of life in his Company; a busy-ness in all its phases. It was a good thing for outsiders to notice. It was pleasant to learn it was not a mere myth. But it was best of all to realize that it meant *the power of self-preservation and growth*.

Converting the Occasional User

How to add occasional patrons to the permanent list? That is a question which confronts many business producers. Every firm of noticeable size has thought it over and practically every one has acted to some extent—inadequate as the actions sometimes have been.

The Pennsylvania Railroad maintains well-chosen libraries in certain of its trains. In Philadelphia John Wanamaker keeps up a "Rendezvous," a sumptuous and spacious room in which anyone may meet a friend. Strawbridge & Clothier send a luxurious automobile for any prospective customer who may wish to visit the store in it. A prominent cafe provides free smoking tobacco and pipes in its stag room. Real estate dealers pay the traveling expenses of prospects so that they may view their propositions.

The patrons of the Telephone Company do not expect libraries to be maintained to interest them while they are waiting for people whom they have called, nor do they expect any of the other appointments to which reference has been made. They want instantaneous telephone service from courteous representatives.

Our occasional patrons are those who use the public telephones or, at times, perhaps, the service of some of our subscribers. Then our opportunity presents itself and the operators throughout the territory who receive these calls form, perhaps, the strongest factor in adding these occasional patrons to the permanent list. When a subscriber or an occasional user of the service forms his opinion of its merits it is largely from more or less infrequent instances of good or bad service. Thus a traveling salesman who has made a flying trip through a State will come back to his own city and generously commend or condemn telephone service as it appeared in every town that he has visited—each opinion based on one or two calls. It means one thing. The service must be good always.

Assuming, then, that our service is as good as skill and experience in training can make it, the next factor in our organization is the Commercial representative. He must first overcome what seems to be an inborn prejudice against signing an agreement before he can obtain an application for service. He must have information of varied nature at hand. He must impress it at the psychological moment. He must be a good listener. By his personal interest in each case he may either hasten or postpone a sale of service.

Third among these important factors are the Plant men who do their part in furnishing the service. Promptness, courtesy, skill and tact evidenced by them will do much toward cementing the friendly feelings begun by the other department workers. Each in his way has an opportunity of which the grasping or neglect can cause favorable or unfavorable criticism of the Company.

Briefly, then, three classes of representatives are essentially important in converting occasional users of the telephone:—quick, courteous and accurate operators; tactful and intelligent Commercial men and keen and efficient Plant representatives. These three factors are the piers that support the bridge of "Good Service." Over the bridge hastens a hurried public. Under it sweeps a stream of comment and criticism. Confidence in the bridge depends mainly on the strength of the piers.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic City District. The Company has made arrangements to furnish toll coupon books in Ocean City to the McCallister Dry Goods Company and to Jas. L. Boyle, groceries and provisions. Both will use them within a radius of twenty miles.

Mr. McCallister, President of the McCallister Dry Goods Company, did not agree to use this scheme until he had considered very carefully several others to get the suburban business of Ocean City which he felt must exist.

In going over the ground he found nearly all the people with whom he wanted to do business had large catalogues from mail order concerns which he says they were more familiar with than a bible. Naturally his first thought was to go into a united scheme of the same kind, but after considering the novelty of the toll coupon book, together with the opportunity it presented to get him in personal touch with his patrons, he decided that this would be the better way.

The construction work has been completed on the multi-party line between Dennisville and Woodbine, and stations have been cut in at the present time. Woodbine is a thriving Hebrew settlement whose only telephone service in the past has been a public telephone.

The people at the present time are planning a public demonstration to celebrate the coming of this modern convenience.

AVIS.

Bridgeton Sub-District. The Walter S. Cummings Company, of Bridgeton, N. J., which has one of the largest and most up-to-date department stores in South Jersey, has adopted the Company's method of "Selling by Telephone." The store is now called "The Telephone Store." Mr. Cummings has distributed 3,000 coupon books in the towns and country within a 25-mile radius of Bridgeton providing that customers may use the Bell telephone absolutely free and guaranteeing that the goods will be delivered by his automobile delivery within 24 hours after purchases are made.

Mr. Cummings announced his adoption of this method by an advertisement in the daily newspaper which covered one-half of the front page and is claimed by advertisement writers to be one of the most complete "Shop by Telephone" advertisements ever printed. In the centre of this advertisement there is a photograph of the three-story, fireproof brick building, surrounding which are arrows representing the different towns and villages within a radius of 25 miles. These arrows point directly at the "Telephone Store." Directly underneath this cut is printed in bold type, "A network of wires places South Jersey in touch with the Cummings Company Store." Particular attention is called to the fact that patrons can call any particular saleslady and buy over the telephone with the same satisfaction as by going to the store. In another advertisement Mr. Cummings says, "During the hot, sultry summer months why get

overheated by dressing to come to our store—don't do it; call us on the telephone—goods will be sent to your door for inspection." LORE.

Dover District. That the Dover public schools keep pace with the times is shown by a problem which appears in the sixth grade arithmetic, as follows: "If the Bell Telephone Company charges \$40 per year for 600 calls, what is the price per call, also the average monthly cost, providing the calls are used in equal monthly installments?" The school has telephone service and it has been suggested that an intercommunicating system be installed to replace the push buttons and bells now used for signalling the different class and study rooms, when classes are called or dismissed.

The Persimmon Tree Lane Telephone Company, a Plan "A" with 5 subscribers connected, completed its line last week. The telephones were installed in the forenoon and at 3 P. M. one of the subscribers received the first call over the line—concerning the

sale of some hay. The call netted him \$20. The Company derives its name from a lane of persimmon trees on the farm of one of the subscribers, and this section is famous for the production of this peculiarly luscious fruit.

The traveling representative of a large shoe firm recently arrived in Dover with a large assortment of sample shoes to be displayed at a local hotel. It had been the custom to send a postal to a certain number of persons a few days prior to the arrival of the salesman. Business was dull this trip and few persons came to the hotel to place orders. The suggestion to "USE THE BELL" was made to the salesman and he procured a directory and began calling the people by telephone. The result was more than surprising, as the personal invitation to call brought a larger number than ever had viewed the samples, resulting naturally in a record-breaking order list. PRINCE.

Doylestown District. An application was obtained on May 12 for a No. 2 private branch exchange from H. C. Nolan & Co., cigar manufacturers, Sellersville, Pa. The equipment consists of 2 trunks and 7 stations, and supersedes a 10-mile radius contract and 2 extension station.

HENNESSEY.

Norristown District. The Charity Hospital, Norristown, Pa., has just been superseded from direct line service to a branch exchange, intercommunicating system, 5 stations.

A Pottstown salesman recently signed for telephone service a woman 83 years of age.

The Pottstown Plant department is arranging to connect one of the private branch exchange stations of the Warwick Iron and Steel Company on a revolving crane. As this is quite a departure from the usual kind of installation, considerable interest is manifested in its practicability.

BEERER.

Trenton District. The new Plan "A" rural line reaching various cranberry bogs located in the pine belt of New Jersey south of Medford exchange was O. K'ed on Saturday, May 13. Within 48 hours after the completion of this line it demonstrated its great value to the cranberry bog owners. By a strange coincidence a dangerous forest fire broke out near the cranberry bog of Henry Thorn. Immediately the new telephone was used to summon help from the neighboring country within a radius of 5 miles. By means of the help secured by the telephone the cranberry bog was saved from complete destruction and the fire placed under control.

Because of the extreme sandy condition of the road in this locality, the necessary immediate help could not have been secured by any other means than through the use of the new telephone service.

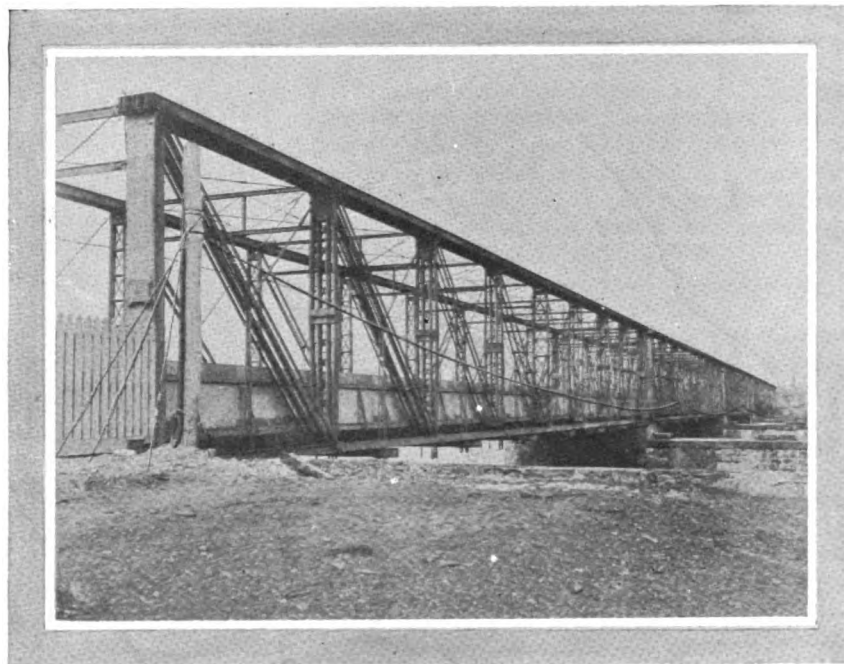
GARWOOD.

Wilmington District. The publishers of the Wilmington City Directory report that the completeness of the local telephone directory is such as to interfere with the sale of their directory. Within the past 2 years the circulation has been cut 50 per cent.

CHAMBERS.

New Trenton-Morrisville Cable

A 240-pair lead-covered cable has been erected on a bridge spanning the Delaware river between Morrisville, Pa., and Trenton, N. J.



Trenton-Morrisville Cable—Showing End Support

Iron posts, twelve feet high, were placed on the abutments of the bridge and secured by four guys fastened to the abutments with rock eye-bolts.

The cable is in spans 240 feet in length, supported on two suspension strands. One strand is placed about 12 inches below the other at the poles and picked up with guy clamps in the span. The rings are placed only on the lower strand.

This cable replaces a 120-pair cable, supported on the bridge structure, which was continually in trouble due to crystallization of the lead sheath caused by the vibration of the bridge.

Washington Division

R. G. HUNT, Division Correspondent

The Washington Supervisor of Supplies recently had two practical examples of the results obtained by the judicious use of motor cycles.

A call had come in for a wagon to move a monitor switchboard and three stations from No. 2114 V Street, N. W., to No. 1112 Connecticut Avenue, N. W. It was a rush order and required immediate attention. There was no wagon at the warehouse at that time. The Supervisor dispatched F. S. Crismond, a mechanic, on his $3\frac{1}{2}$ horse-power Indian motor cycle and instructed him to make the necessary move. The entire equipment was moved in twenty minutes—covered ground and doing work that ordinarily would have occupied an hour and a half. The first illustration shows the monitor switchboard mounted on the motor cycle luggage carrier.

In the same way a call was received for 67 lbs. of insulated wire and a bag of tools from a gang working near Tennallytown. Both of these were needed at once to complete the job. Again no wagon was available. A small platform was rigged up in five minutes and the wire and tools were placed on the motor cycle and started to the job. In this instance a drive of three hours with a wagon was saved. The second illustration shows the motor cycle loaded with the emergency wire and tool bag.

The order of the Interstate Commerce Commission, submitted April 3, 1911, in re William D. Shoemaker vs. The Chesapeake and Potomac Telephone Company, possesses many features of interest. Rather than to abrogate certain existing contracts at suburban rates in its Cleveland Exchange, the Telephone Company has continued to furnish those subscribers with a former class of service, although the exchange has been changed from suburban to the city basis. All contracts for service which have been closed subsequent to the change of this exchange to the city basis have been taken at city rates, except in certain cases of applicants located in Maryland beyond the distance of one mile from the District of Columbia line. The complainant, Mr. Shoemaker, is located within this initial radius, and, in accordance with the prevailing practice, he was tendered city rates. These he refused to consider and demanded that he be given the suburban rate. Upon the Company's refusal to accede to this demand he brought the case to the attention of the Interstate Commerce Commission. Under the provision of the act of June 18, 1910, extending the privilege to regulate commerce to "telegraph, telephone and cable companies, whether wire or wireless, engaged in sending messages from one State, Territory or district of the United States to another State, and so forth," the Commission rendered its decision that the Company was unlawfully discriminating, although it acquitted the Company of any moral dereliction whatever.

As a result of a complaint lodged with the Traffic Department by one of this Company's wealthy subscribers an interesting bit of information was obtained. The woman had been in conversation with one of our large department

stores and had been cut off in the midst of her conversation. She was very much annoyed, and, in reporting the matter to the Traffic Manager, stated that she was fitting out her summer residence by telephone, and that during the course of the morning she had purchased over \$2,000 worth of goods. She stated further that it was her practice to make as many purchases as she possibly could by telephone, and that in view of its necessity to her she had to insist upon first-



Switchboard
and other
Equipment
Moved
by
Motor Cycle



class service. The manager finally elicited from her the information that the service usually was most satisfactory and that difficulties arose at very infrequent intervals.

The Washington Division has completely sold out all of its marginal advertising space for the June issue of the telephone directory. This is the first time that such a record has been made. In previous issues all such space in the city section has frequently been sold, but the suburban section has exhibited many blank spaces. In the next issue the suburban also will be completely filled.

"Telephone News" Binders

There are in stock at the Western Electric Company's storeroom, about 180 binders for THE TELEPHONE NEWS awaiting requisitions from the various departments. Each is stamped in gold and is large enough to contain about three complete volumes. It is to be hoped that these will be ordered out, so that the number of permanent files of the Company's paper may be greatly increased. For further particulars and illustration see the issue dated January 1, 1911.

Courtesy*

By Kathleen Mosier

Courtesy, as defined by Webster, means elegance of manners, politeness and civility. To be courteous to everyone with whom we may have any dealings should be the ambition of every operator. Do not let that courtesy appear mechanical as if it were exacted under a very rigid discipline, but let it be natural, as if it were the results of a lovable nature and congenial disposition. Courtesy is a social debt which we owe to everybody, especially our subscribers. From my past experiences, I find that when a subscriber becomes angry by his own mistakes, in giving a wrong number or other similar causes, if a little courtesy or diplomacy is employed, he is ready to acknowledge his mistake by making apologies. It is just as easy and requires no more efforts to be courteous than to be snobbish and vulgar, which, of course, we know to be quite out of place.

In conclusion, I wish to say that the courtesy meted out by operators is not that of a compulsory nature but that which is developed by constant contact with pleasant surroundings and congenial employees.

*First of a series on this subject by operators at Scranton, Pa.

Dr. Bell Returned

Dr. Alexander Graham Bell, who lately returned to America, after his trip around the world, seemed to have spent an exceptionally busy year. Since May 6, 1910, he has visited Honolulu, Tasmania, New Zealand, the Philippines, China, Northern India, France and Italy.

It is said that in India experiments are being made with an aeroplane which carries the mails. Auckland also boasts of an aero club.

Mr. Bell rode on a hydroplane in Italy. The machine invented by Forlanini weighs two tons and is propelled by a 100 horse-power engine.

A. I. E. E. Convention

The annual convention of the American Institute of Electrical Engineers will be held in the Hotel Sherman—Chicago's newest hotel—June 26-30. L. A. Ferguson, 120 West Adams Street, Chicago, Ill., has been chosen chairman of the Committee of Arrangements. Several of the papers to be presented will be of unusual interest to telephone men; two which may be mentioned are Multiplex Telephony and Telegraphy by Means of Electric Waves Guided by Wires, by Major G. O. Squier, and Electrolysis in Reinforced Concrete, by C. E. Magnusson.

The Telephone Pioneers of America

The association with the above name now numbers 234 members whose names appear in a folder just issued and distributed by Henry W. Pope, A. T. & T. Company, 15 Dey Street, New York. Their lengths of service vary from 1875—prior to the granting of the telephone patent—to 1888, although those who date prior to and including 1890 are eligible to membership.

It is now planned to hold the first meeting of the organization in the summer or fall of 1911 at a place to be selected by the members themselves. Although Boston, as the birthplace of the *business*, has been suggested the final decision will depend upon the consensus of opinion expressed. All registered members are requested to forward their preferences for a place of meeting to Mr. Pope, whose address is given. Anyone may forward the names of Telephone Pioneers, not registered, who come within the eligible list.

A memorial has just been issued to Henry M. Watson, who died in the latter part of April. Mr. Watson, one of the Pioneers, was, until recently, President of The Bell Telephone Company of Buffalo.

Another Consolidation

It has been announced that three more Bell Companies, the Missouri and Kansas, the Bell of Missouri, and the Pioneer of Oklahoma, are to be consolidated.

Charles S. Gleed, now President of the first two, becomes President also of the Pioneer, and E. D. Nims, formerly President of the Pioneer, becomes Vice-President of all three Companies.

Pittsburg Division**L. W. GRISWOLD, Division Correspondent**

Exposition Park, the summer exchange of our Company at Conneaut Lake, Pa., was opened on May 30.

Conneautville is the name of a new exchange in the Pennsylvania territory.

At the Carver House, Sharon, Pa., a cordless switchboard with 7 stations has been installed.

The telephone plant in Erie, Pa., is to be improved by the expenditure of about \$125,000. The Company's building at 20 East Ninth Street will be remodelled and one story will be added.

Pittsburg District. Coupon books for toll service to the number of 40,250 have been ordered by 27 Pittsburg business firms. Of this number, a large percentage are wholesalers and but 2 are engaged in the same line of trade. One of them gives his opinion of telephone service in this manner:

"Next to a personal visit is a telephone message. Do not hesitate to make use of the opportunity here presented for free telephone service. We are *anxious* to have you avail yourself of the offer. Our representative cannot always be on the spot when you want to buy goods, but *we are always on the other end of the line.*"

Greensburg District. Greensburg recently experienced one of the worst wind and rain storms known in years. On the day of the storm Barnum and Bailey's circus was here. Shortly before the performance started and while the crowd was gathering, the wind began to blow with such violence that several of the smaller tents were blown over and the circus management, fearing for the safety of those assembled, ordered the spectators from the "big top." Just then a drenching rain began to fall which did its damage before the people could find shelter. Rumors flew about Greensburg to the effect that a large number of persons had been killed by a stampede following the collapsing of the big tent, and it seemed as if every stay-at-home made a rush for the telephone. For an hour the heaviest load ever known in the Greensburg Central Office was carried. At this Central Office there is an eleven-position switchboard and each position was filled, while two supervisors continually took down completed connections. It is estimated that local calls were completed at the rate of 3,500 per hour, while the load was at its height. About 75 stations were out of service for some time, but before night all were working. The Company received many compliments from its patrons regarding the efficient manner in which the operators handled the traffic under the trying circumstances. The local newspapers also commented on the quality of the service rendered.

The following is a copy of a communication received from the secretary of one of our Plan "A" companies:

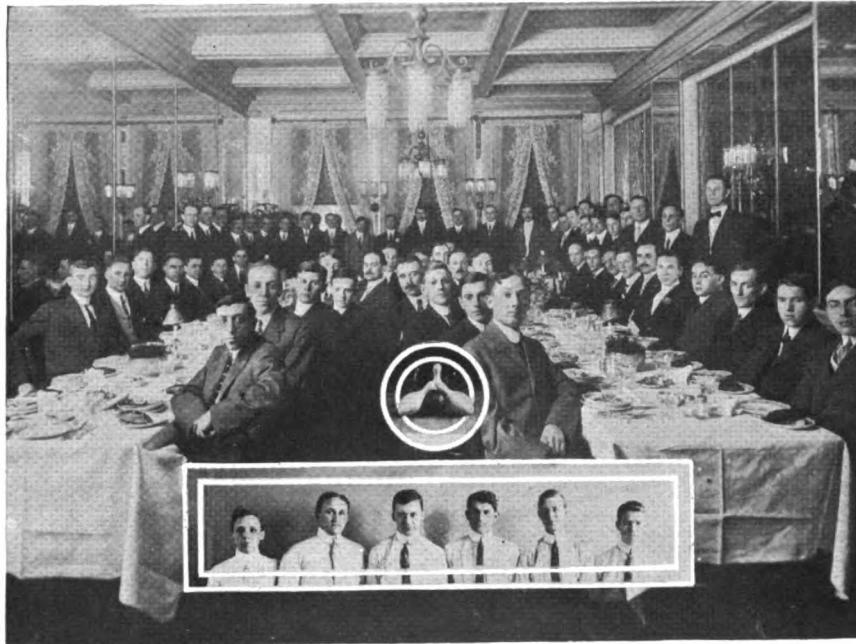
I have just been informed that the No. 670 circuit and all the telephones on it are now in working order and the subscribers are staying up nights to talk over the new line.

I thank you for the courtesies extended.

New Castle District. Private branch exchange contracts recently signed in this district include one for a switchboard and 27 stations to be installed in the plant of the Driggs-Seabury Ordnance Company of Sharon, Pa. MEYER.

The following is a letter received by the Greensburg District Plant Supervisor:

one of the linemen told me you Don the Harin the men to work on the Telephone Company will you Give me A Job of Work I can Do second Class work I



**Bell Telephone Duck Pin League of Greater Pittsburg
Winning Team (Plant Department) in Foreground**

Kin Climb Pole I would Like to Have A Job From You I am Good I work for C. R. Sennett I work for Mr. Geo Beyard in Uniontown My Name is C. H. Abel Uniontown, pa. R. F. D. No. 3 in care of E. K. Walter. you please Give me A good Job of work you write and Let me Know whetther I Kin Get work.

HUGUS.

Uniontown District. On May 6 the Brownsville exchange was successfully cut over from the magneto to the common battery system. The new board is a No. 10 with a capacity of 800 lines, and an ultimate capacity of 1,000 lines. This arrangement provides 5 local and 4 toll positions.

Uniontown has been made the toll center for Fairchance, Masontown, and McClellandtown; and Connellsville the toll center for Dunbar.

Twenty-six members of the Wheeling Board of Trade, on the annual Trade Boomers' trip through West Virginia, put in long distance calls, from the local commercial office at Morgantown, W. Va. All of the calls were completed within 20 minutes, not one lost ticket being reported.

The Traffic Department has recently opened retiring rooms for the operators at Connellsville, Pa., Grafton, W. Va., and Morgantown, W. Va. The operating rooms at Dunbar, Dawson, Fairchance, Masontown and Point Marion have been painted and repapered.

West Virginia continues to expand telephonically. Forty new drops have been added at Fairmont, 200 lines at Morgantown, and 2 new local positions at Clarksburg. CAHOON.

Wheeling District. G. C. Bradford at Parkersburg, W. Va., recently obtained an application for telephone service from a woman who 2 days before had signed a contract for an instrument

of the opposition brand. She was impatient at the delay in making the installation and told the salesman that if this Company could get its instrument on the wall before the opposition placed one, then she would cancel the contract she had first signed. The Plant Chief received the line order at 11.05 A. M. and the telephone was O. K.'d 45 minutes later.

The letter quoted below is one received from the secretary of Wheeling, W. Va., Board of Trade. It is self-explanatory:

On behalf of the party of Wheeling business men who participated in our recent Trade Excursion, I beg to thank you for the many courtesies extended by your Company during our trip, and to say that your kindness and attention were very much appreciated.

H. G. Bills did all that could be asked in the way of furnishing service to our party, and proved an excellent representative of your interests.

We hope to have your Company represented on all future excursions and I wish to thank you for your efforts to boost Wheeling and its trade. HEALY.

Duck Pin League

The Bell Telephone Duck Pin League of Greater Pittsburg is an organization that has been in existence for three years. It is composed of 10 five-man teams, selected from the employees of the Pittsburg District, each team bearing the name of the division or exchange district which it represents. The purpose of this organization is to cultivate good fellowship by weekly meetings of the employees of the different departments of the Pittsburg Division, and its purpose has been fully realized.

At the annual banquet held at the Hotel Henry S. C. Stewart, Captain of the Plant team, acted as toastmaster. Prizes were distributed to the five teams composing the first division and to the men who won individual honors. Officers were elected for the ensuing year, as follows: President, L. R. Francis; Vice-President, S. C. Stewart; Secretary-Treasurer, F. W. Ulery. The standing of the teams at the close of the were as follows:

	Won	Lost	Per Cent.
Plant	67	14	.827
Grant Exchange	56	25	.691
Book-keeping	55	26	.679
Commercial	41	40	.506
Accounting	40	41	.493
Hill Exchange	35	46	.432
North Side	35	46	.432
A. T. & T. Co.	30	51	.370
Maintenance	25	56	.308
Engineering	21	60	.259

High score—Grant, 547. High three-game average—Plant, 509 $\frac{1}{3}$. High individual score—Sauers, of Grant team, 141. High individual three-game average—Connolly, of Plant team, 115 $\frac{1}{3}$. High individual average for season—Connolly, of Plant team, 101 36/75. Second high individual average for season—Sauers, of Grant team, 98 50/72. Third high individual average for season—Long, of Plant team, 96 74/78.

Troopers and the Telephone

Patrols covered by troopers of the Department of State Police amounted to 408,016 miles during a recent year. In the same year these men, more familiarly known as the State Constabulary, visited 1,520 towns and boroughs in 63 of the 67 counties of Pennsylvania. The troopers, whether riding over the highways in full accoutrements or dressed in rags and tramping with tramps, look upon the Blue Bell sign with intense interest. Its location is always carefully noted because it stands for an instrument that summons aid and saves lives.

The Department of State Police has placed Bell Service at the disposal of the troopers. In the barracks many of the sleeping rooms are provided with standard wall sets, while in the offices and corridors Bell instruments are encountered at every turn. This binding of barracks with barracks by means of Bell telephones brings out the intercommunicating feature of our service in a striking manner. Troops are quartered at Butler, Greensburg,

Pottsville and Wyoming. The total force of 228 men is split, one-half being on one side of the Allegheny mountains and the remainder on the other side. It is of vital necessity that each troop should know at all times exactly what the other is doing and also what it is planning to do. A riot call may come at any instant, and when it does conditions may necessitate the concentration of a maximum force at a settlement on the northern border, and then it is just as likely that help will be needed at a southwestern or some other remote point.

Constabulary troopers are employed to fight fires, but they differ from the ordinary fire companies; they are employed to preserve order, but they differ from the ordinary police forces; they are employed to trail criminals, but they differ from ordinary constables. The one great difference lies in the fact that the troopers are obliged to work over a State-wide area, while the limits to which firemen, policemen and constables are confined, are quite small in comparison.

At the very start, when the troopers were being assembled pursuant to an act of the assembly dated May 2, 1905, it was realized that platoons must be distributed at widely separated points throughout the State. As soon as barracks sites had been chosen it was seen that the most rapid sort of communication must be employed in order to direct the four troops as a unit. To overcome the obstacle due to geographical location, the telephone was adopted as a matter of course. How well telephone service is playing its part in the State's undertaking is shown by the records in the department headquarters.

One August night in 1906 a call came over the telephone from Hughestown. There was a riot on at that place, so Privates Garland, Adelson and Butler were sent in plain clothes to the scene of the trouble. The troopers were approaching the center of the town, by way of a side street, when without warning, two shots came from the blackness. Garland fell with a shot through his chest and Adelson received a

bullet in the stomach. As the men fell, foreigners swarmed from the ambush and Butler rushed forward to arrest the foremost of the rioters. Butler being hopelessly outnumbered, made a dash for a nearby public telephone sign. He reached the telephone and his call brought a sergeant and ten privates to the rescue. Within a half hour the reinforcements were upon the scene. The whole community was systematically searched and seven arrests were made. All of the prisoners were tried and sentenced to prison terms varying from one to three years.

It was about four o'clock on the afternoon of September 2, 1906, that Sergeant Logan of Troop "D" was shot five times while trying to arrest two Italian murderers at New Florence, Jefferson County. The assailants had taken refuge in a nearby house and as the Sergeant came around the corner the attackers emptied their guns. The officer saw that his chances for success were swiftly lessening so he used the remainder of his strength in reaching a house from which a pair of

twist slanted to a nearby telephone pole. He reached the seclusion of this dwelling and telephoned to the barracks. A call was sent by the quartermaster to a detail already on its way to carry out another assignment. The troopers were overhauled at a toll station and at once sent to Logan's assistance. As the detail trotted through the main street, shot guns, carbines and revolvers were poked from the doors and windows of a house about 150 yards from the place where Logan was concealed. Private J. W. Henry was instantly killed and Sergeant Mullen was seriously wounded. Private (now Sergeant) Homer Chambers, in the face of a steady fire of bullets that came from the house, returned to the scene to secure Henry's body. He was shot eight times. It was then that the troopers planned to rush the house. As Private Zehringer entered the building at the head of the detail he was shot through the head. In the meantime the telephone had been called into service

used. Three bodies were found in the ruins of the building. Sergeant Chambers recovered from his wounds and is to-day an active member of Troop "D," which has recently been moved from Punxsutawney to Butler.

Barracks of the most modern sort have been erected for the troops at Butler, and the telephone equipment in the building is in keeping with the high standard found throughout the premises. Each of the officers has a telephone in his room. The instruments are placed at convenient intervals throughout the sleeping quarters of the privates. Desk sets are used in each of the offices, while the hallways and lounging rooms are adequately equipped. Bell toll lines are used constantly as the means for giving orders to the men on patrol. And the troopers often call up the barracks to make known their progress in relation to the assignment on which they may be engaged. These assignments include the apprehension of those who break the fish and game laws, the subduing of forest fires, detention of illegal car riders, the maintenance of quarantines and many other activities.

Efforts of the Constabulary have been directed with telling effect toward the suppression of the so-called "Black Hand" outrages, now growing less common in the Italian communities throughout the State of Pennsylvania. This form of law-breaking, which is said to be an offshoot of the "Mafia" and "Camorra" that flourish across the sea, is usually directed against some prosperous Italian shopkeeper who has become an object of envy. The method of procedure is a simple one. A note is sent to the intended victim. If the provisions are not complied with, dynamite is used to reduce the shop or stand and owner to atoms.

Sergeant Chambers tells of a certain Italian bandit who was coralled on the night of May 5, 1907. Four officers and 24 privates of Troop "D" had been sent to Barnesboro, Cambria County, at the request of the District Attorney. The telephone was used to good effect in this instance. All of the men were in plain clothes, and for several weeks so distributed about the neighborhood as to prevent suspicion from arising on the part of the foreigners. Troopers in widely separated sections of the county talked by telephone and planned attacks with the utmost minuteness without dropping hints to the enemy. So well was the preliminary work done that on the night in question a raid was made while the bandit and his countrymen were holding a "Black Hand" meeting. The whole outfit, consisting of



Trooper's Room, Butler, Pa. Note Telephone

State Police
Barracks
at
Butler, Pa.



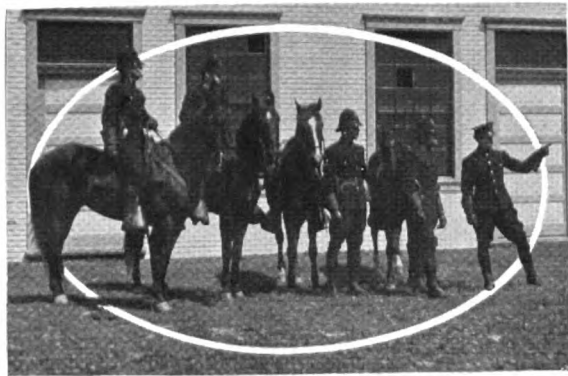
for a second time and a fresh detail appeared on the battle ground just in time to prevent the foreigners from running wild and "shooting up" the whole town. The house was surrounded, and when morning broke the inmates were again commanded to come from behind their barricade. This they refused to do, so dynamite was

14 men, was captured, and each one was tried and sent to prison. The bandit confessed and gave many secrets pertaining to his organization which were of a great help in subsequent operations against such gatherings.

One particular meeting took place near some felled trees that formed an open space in the

center of a deep woods. Scraps of paper which said that a picnic would be held were received by each member of the clan, who knew very well just what kind of a picnic was planned. For several hours before the confab convened sentries had been stationed in a circle that was several hundred yards in circumference. "Are you afraid of the police?" was the password that admitted the members within the circle.

Numerous razor-edged stillets were present to keep out intruders. But on this night the sentries were led astray and men from the constabulary penetrated to the inner circle, where stood fourteen men, each with his arms thrown



A Squad of State Police.

across the shoulders of a fellow-member. A heated jangle was taking place when guns of the troopers chilled the ears of the Black Hand men. Owing to the peculiar position assumed while the meeting was in progress, the foreigners did not have time to draw a single dirk. Each man was quickly searched and marched back to the village.

At best the troopers fight against heavy odds. They are invariably classed as intruders by those whom they seek to make law-abiding. And wherever they are sent they appreciate that chances are being taken. Ninety-eight per cent. of the men in the service have received training in the regular army, and all of them are horsemen of the first class.

"This may sound queer to you," said one of the troopers the other day, "but I am quite positive when I make the assertion that a mob does not have a leader."

"Is it true that you pick some man in the crowd and get him above all the rest?" he was asked.

"Of course not," he replied. "There may be one or two individuals who appear to be agitators, and we try to suppress them. Usually, though, one of our men rides ahead and says a few things. 'We're here to preserve order,' he'll say. 'It is safer for all of you people under cover. You must all of you keep moving. We are going to give you all the show in the world.' If by that time the speaker hasn't been hit with a missile we simply go about clearing up the atmosphere. It is an unbreakable rule that the crowd must take the initiative as far as hostilities are concerned. When trouble starts we ride into the meeting and break up the gathering."

"Telephone service must be a great time-saver for the troopers," is a comment that was made to one of the officers.

"Well, we would be all at sea without it, and I don't believe I could give it any bigger boost than that."

"Why," he concluded, "it's not so far from here to Harrisburg by Bell telephone as it used to be from my shelter tent to the Colonel's bunk in the days when I was in the Islands."

Philadelphia Division

D. J. CLEARY, Division Correspondent

Private branch exchange stations located in manufacturing plants in this district are rapidly taking the place of time clocks for general purposes. The arrival and departure of employees are noted by telephone and in working up "jobs" the operator is notified of the beginning and finishing time, and she in turn keeps a record of all work done.

It is noticed that a number of the classified "want ads" now appearing in the daily papers of this city read "telephone —," instead of asking for a response by mail or in person.

At 12.40 P. M., May 13, the Philadelphia-Wilmington toll cable failed. At the time of the first report 7 trunks were out of service and additional trunks were failing every little while. The runabout of the Supervisor of Construction was pressed into service and used to transport a cable gang to the location of the trouble, about 9 miles from the center of the city. A gang was picked up at 1 P. M. and was landed at the scene of the trouble at 1.40 P. M. It was found that the cable failure had been caused by a pole gang of an electric light company. While these men were digging a pole hole they punctured our conduit and cable. Repairs were started at once and an O. K. was received on all trunks at 2.55 P. M. The elapsed time between the first report and the final O. K. was 2 hours and 15 minutes.

One of Philadelphia's wholesale butter and egg dealers has nearly fifty salesmen in the city and country engaged both in purchasing and disposing of their products.

"I have been very much interested," said the senior member of that firm to a telephone representative a few days ago, "in your recent method of handling the sales-by-telephone proposition. It may seem strange, but it is a fact, that *twelve years ago* my father became convinced of the desirability of this plan and urged his assistants to use it not only for local but for out of town dealing.

"'Why do you suppose,' said he, 'the Bell people have put all that money in wires, if they didn't expect the equipment to be used?'"

"He used to say that salary and traveling expenses and time could be saved by the telephone's use and kept impressing the point at every opportunity. We thoroughly believe in his plan, as our telephone bills will show."

Main Line District. On May 12 C. H. Pounds, of this district, obtained 9 new applications for service, totaling 14 stations.

Application has been obtained from the Devon Inn management for a No. 1 private branch exchange with 20 stations and 2 trunks. This fashionable hotel, overlooking the polo grounds, is one of several along the Atlantic seaboard managed by the same man. Many unsuccessful attempts had been made to standardize this contract.

A contract has been closed with the Haverford Court Apartments for a No. 1 private branch exchange with 3 trunks and 26 stations.

Salesman Devereaux has obtained a No. 2 private branch exchange application from Rittenhouse Bros., of Wayne. This is a large firm of grocers operating on the Main Line. It has a No. 2 private branch exchange in its store at Ardmore and another at Bryn Mawr. BURT.



A Trooper and His Mount, Butler, Pa.

Cost of Living

In the May *Public Service* there appeared an article showing how the large increases in the cost of materials used by public service companies have eclipsed the cost of various necessities used by householders. Increases of from 10 to 171 per cent. in the cost of materials entering into the furnishing of telephone service and other public utilities are shown in detail. For example, householders' coal has advanced 23.1 per cent. during a period of ten years, while fuel used by the corporations has gone up from 45 to 85 per cent. according to the grades used. Some of the heavy raises affect the following necessities: Crude petroleum 120 per cent., steel rails 49 per cent., zinc 51 per cent., hemlock 102 per cent., yellow pine 86 per cent., poplar 89 per cent., spruce 71 per cent., shingles 80 per cent., resin 171 per cent., turpentine 117 per cent., lead pipe 55 per cent., pig lead 54 per cent., bare copper wire 75 per cent., bituminous coal 85 per cent. The complete list is compiled from Government reports, and while it includes some articles used only in small quantities by the Telephone Companies, it serves to demonstrate the problem now being met by public service and other corporations throughout the country.



Officer's Desk in State Police Barracks, Butler, Pa.

The Functional Treatment of Accounts

(Continued from page 1)

counts must answer for him. So we find accounting gradually taking shape as the science which enables the man immediately concerned (and others also) to know whether he has "money" or not. The titles used—Assets and Liabilities, Debits and Credits, Revenues and Expenses, all refer at first to this idea of the trader, who makes or loses money by his deals. But we are some centuries past all that by now; the single merchant (the Antonio or Shylock of "The Merchant of Venice") is no longer the great figure in our business world, and many of the old legal doctrines seem scanty when stretched by Court or Legislature, in the attempt to cover modern corporations. But that is a great subject with which we have no special concern. The point for us is that business is now viewed as an economic process, not as the money-making activity of an individual, and the importance of individuals is now gauged by their relation of ownership, control or employment to that process. The art of accounting is no longer merely asked to tell whether or not John Jones, baker, at the sign of the Good Brown Loaf, is making money, but whether or not the National Biscuit Company is headed in the right direction and under the right sort of management. To treat the National Biscuit Company as merely a gigantic John Jones, over on Ninth Avenue, New York City, with other local embodiments of "himself" in other cities, each separately making or losing money, is no longer satisfactory to us. We think of the National Biscuit Company as a group of processes, a gigantic complexity of activities, which must be organized, managed and recorded for the highest possible efficiency. The continuing life of the business is more important than any single particular payment of bills, wages, taxes or dividends, *i. e.*, we are accounting for a process rather than a person. This whole evolution is summed up and implied, when we use the term "Functional Organization," a phrase which would probably have puzzled Croesus or any of the early magnates very much.

When we have made up our minds to accept the principles of Functional Organization, then the functional treatment of accounts is bound to follow. Habit and tradition are strong, as is always the case in any honorable calling, and the law's effort to protect creditor and stockholder affects accounts as well as organization, but the line of progress lies quite clearly in the direction of recognizing that we are (or should be) keeping track of the continuing life of a great business, we are not limited to recording money transactions, which may be regarded as terminating without further consequences. This may seem an obvious general principle rather than a subject for exposition and discussion, but the difficulty of general principles is that mental acceptance often does not involve detailed application as is illustrated by the famous question, "What's the constitution between friends?" It's easy to say "yes" to a general principle—the trouble is to practice it. Therefore, it may be worth while to examine what is meant by the "Functional Treatment of Accounts" and to see if we get any usable conclusions.

At the outset, it should be noted that developing such a line as this does not involve any indictment of or reflection on good work done in past years. We are all bound to do the best we can with the light we have. The fact that growth and change present new possibilities is not either creditable or discreditable to any one. Discredit

should follow only if we refuse the new opportunities as they arise. The world moves and we must move with it, but a man lives as an active executive only during his own lifetime; the chances he has are those that exist during that period. This is as true of the development of scientific organization and accounting as it is of the development of any scientific method.

The functional treatment of accounts can be taken to mean either that accounting is to be departmentalized throughout the field, *i. e.*, all accounting wherever performed is to be under the jurisdiction of the Accounting Department, or that each department is to do all accounting necessary in the performance of its functions, and is to report to the Auditor only the data needed for the general accounts of the company. The first theory is that accounting is in itself a distinct function to be specialized and developed accordingly. The second (and preferable) theory is that accounting is necessarily an inseparable part of the work of each of the main departments. It follows that this administrative accounting (Commercial, Traffic or Plant) must be carefully distinguished from, and justly related to, the functional accounting proper, *i. e.*, the general accounts of the company as kept under the supervision of the Auditor. An attempt will be made to develop some of the theoretical and practical advantages of this second interpretation.

The great field in the telephone business for waste and loss by carelessness or bad judgment is in connection with the asset and expense accounts. Dishonesty may break out at any place or time, but is far less likely to be a continuing drain on the business. We can count more confidently on men being honest than we can on their steadily exercising good judgment. The only safeguard a company can possibly have is in the accurate completeness of its property and expenditure records, and in the absolute definiteness with which responsibility therefor is placed and enforced. This should be obvious to any one familiar either with the above classes of accounts or with the actual work of construction, maintenance and operation. What we want to do is to shove out into the field-supervision both the responsibility for such errors and the intelligence that will prevent them. It seems clear that the only way to get this is through the functional treatment of accounts as previously defined.

But this negative statement does not bring out the strength of our proposition. What we want is to build up administrative accounting in the main departments (Commercial, Traffic and Plant), so that those immediately in charge will be keenly aware of their responsibility for the company's prosperity, so that they will have at hand, as a result of their own work, complete statements of all significant facts expressed in terms of money, as well as in terms of articles or actions. Supervisors and their forces usually see quite clearly the work they are performing for the company; wires are being strung, messages are sent, subscribers are secured, troubles are cleared, etc., etc., and those concerned are often quite impressed thereby, as any one can learn from our telephone journals or by attendance at such meetings as these. But it seems certain that the financial or cost aspects of our work should be just as clearly kept in mind, not as discouraging activity, but as an inevitable, necessary and important element therein. Administrative accounting should make this possible by training our folks to see performance and cost as two inseparable related aspects of the same phenomenon. Only thus can we escape the very real danger of resting satisfied with the con-

sciousness of activity, of thinking "Oh, well, I worked hard to-day, put in so many stations," or "Busy day! Saw forty people." We must always raise the questions, "Did we do the most necessary thing?" "Did we do it in the best way?" "Did our time expenditure enable our Company to make a profit on it?" And to help answer these questions we must have at hand the tabulated facts concerning our own line, showing what has been done elsewhere, what has been done here at other times. The Biblical phrase, "Provoking one another to good works," comes to mind as a very apt designation of the value of such administrative records. A recent example of this was cited by Mr. Stryker, Plant Superintendent at Harrisburg, in an address before your society published in THE TELEPHONE NEWS of April 15, this year, when he speaks of "Keeping suitable records of the power and light that is being used, and making a score as to the amount of power and light that should be used, provided that no more current is put in the batteries than is necessary, and no more lights are kept burning than are useful. In one exhibit, that we have had recently, a Supervisor has made a saving aggregating \$1,000 per year in one small district of 10,000 stations. This exhibition was worth many times the initial amount saved, as it made all other Supervisors anxious to create similar savings in their districts."

It is clear that studies and comparisons of this sort cannot be very well handled from outside the department. If the accounts and records involved are not framed and kept under the eye of those directly concerned, then our situation as to supervision will somewhat resemble the rigid and wasteful organization of the Prussian Army after Frederick the Great, concerning which we are told that a line of soldiers did the fighting (in order to escape punishment); a line of corporals, etc., kept the soldiers from deserting and enforced orders, while the officers directed the battle, and the Court did the thinking. Napoleon's more functional organization smashed this as if it had been a house of cards. The public schools have put us in a position to do better than that, and to justify ourselves as organizers we must make use of the high level of general intelligence available under modern conditions. We ought to make it impossible for any employee, much more for any Supervisor, to think of figures as the Auditor's fad, or of arithmetic as the means of livelihood of bookkeepers. It should be impossible also for any one in a supervisory position to shelter himself behind any such generalizations as that "the company wants us to know what prices we pay," or that "the necessary records should be accurate and legible." A better statement was made in your TELEPHONE NEWS last year: "It is essential to determine just what figures will be of most assistance as a general indicator, and to arrange to have these compiled regularly. For more detailed cost work, make special studies from time to time."

This may seem a large order, for what we want is to build up in each department a technical scientific system of administrative accounting (not mere bookkeeping) which shall become fundamentally a part of the operating functional supervision within the organization. It is worth noting that this procedure is absolutely in line with our general theory of organization. Significant data are to be gathered from individuals and groups and built up in the proper channels of authority. Each department thus gets the indicative facts, both for its own guidance and for the aid it owes all other departments, while retaining full responsibility for action thereon. Such data will be significant along functional

lines and will be interpreted and applied functionally, *i. e.*, by the department heads, not by an outsider. I do not care to labor the point, but perhaps the matter will be clearer if considered in connection with the work of the specific departments.

Take the case of a Plant Superintendent, who has on hand an extensive job of toll pole line construction. He organizes scientifically for the most efficient performance of the job, probably with separate gangs, each headed by a foreman, to do the distinct divisions of the work. These may include digging the holes, setting the poles, stringing the wire, installations, etc., etc. Now, we do not propose to burden these men with the task of recording the accounting minutiae involved. This is an aspect of the work and it must be done, but we believe in specialization. It follows that the Plant Superintendent must include in his field routine a force which can write the life-history of the job, as well as a force which can get it done. It is not good management to pull an expert workman or foreman away from his task, and set him to puzzling over cost entries and time apportionments. There may be occasions when this cannot be helped, but these should be recognized as non-functional and dealt with accordingly. This truth applies to maintenance as well as construction. Specialize your plant accounting work, but specialize it under Plant management, and do it where that management's organization can best handle it.

It is submitted that there may be something in this principle for the Commercial people. It is their business to sell (and collect for) the telephone service of all sorts, which this construction and maintenance work has made available. Any amount of red-tape and lost motion can be developed in doing this, and it is distinctly up to the Commercial Department to keep the records which will prevent any growth of self-satisfied inertia. The Auditor is interested in the totals of their expenses and collections, but the necessary stimulus can hardly be derived from these broad generalizations. Those supervising Commercial work should be able to set greater efficiency against less efficiency in glaring contrast, a contrast of year with year, of district with district, of town with town, and perhaps, even of man with man. What is the gap between possibility and accomplishment as to subscribers, as to toll business, as to collections, as to advertising, as to reports, etc., etc.? When one remembers that the thing which can't be done is almost always being done somewhere by somebody, the possible value of administrative Commercial accounting is easily seen. It may make the difference between departmental life and death.

Is not this the accepted principle in Traffic? The Auditor doesn't care about the division of operators' loads or any of the minutiae of Traffic work; these details do not get on the monthly reports, but the present efficiency has been developed by precisely such means of departmental administrative accounting. The case is so entirely in line with our principle that it hardly needs mentioning.

In thus setting jobs for everybody, we must not forget the executive officials who must use the results, and, to some extent, the details of this administrative accounting in the final work of analyzing and harmonizing the life of the telephone company, so as to secure the greatest usefulness with the minimum of investment and energy. This task needs an expert consideration of all functions together, that can be given only by those familiar with the entire fundamental process of telephony. It requires men who have lived with the details, while having the breadth

and intelligence to master them. The numbers to be coördinated and the areas to be covered in our business call for the highest type of scientific management, a fact that should be our daily inspiration.

If this general position is clear, we may go on to consider the proper relation of such work to the Auditor's function.

The Auditor is at the head of the Accounting Department, but we must remember that accounting is a function only in the modified sense already noted, not in the broad general sense in which Traffic, for instance, is a function. The Auditor, as his title implies, has work to do in checking and verifying the corporation's financial transactions. In addition to this and bearing on the point of interest to us now, the Auditor is in charge of the Company's general accounts and of the related accounting systems, for only thus can he ensure proper performance of his inspective duties. It follows that he has discretion and authority in the matter of calling for information, either as special data or as regular routine reports. Now, the natural tendency of a live man is to extend the scope of his power. If the Auditor excels in knowledge and energy, while the other departments conceive themselves as specialized away from accounting, we may find the Auditor's force keeping the detail of estimate and instrument records, etc.—doing, it may be, practically the larger part of the work that should be regarded as administrative accounting, and so forestalling its proper development in the other departments. This situation is manifestly wrong, no matter how well such work may be done. The Auditor does not fix or authorize plant budgets, he does not authorize estimates. It is his part to record what is authorized, and to note in proper shape the spending of the Company's money and the resulting growth of its assets. Take an example from Plant work—the foreman at Black Creek may be paying laborers 25 cents more per day than the foreman at Smithville, while digging his pole holes more cheaply by seven cents each, but such facts are significant only functionally, *i. e.*, within the department. The Auditor has no means of knowing conditions or enforcing proper work at these two places. By the time the figures get to him the Company's money has been spent, the damage is done, and the important details have very often been buried in the totals. Furthermore, such figures, even in detail, are seldom of absolute significance since they can only reflect in precise terms the results of certain plans involving various classes of plant or service, or the results of certain natural conditions, and profitable judgment is hardly possible unless these are known. It may be noted, also, that the value of this comparative principle as between fixed districts may very easily be exaggerated. A striking example is afforded by the fact that repairs to aerial plant run about two per cent. of total repairs in Philadelphia proper, while the same item is usually about 60 per cent. of total repairs in the old Diamond State district. The trend or general tendency within each district is the important thing, and this must be ascertained by comparison of figures over a period long enough to be truly indicative. This is clear, for example, in attempting to determine whether it is more economical to clean desk-stands at short intervals or to replace them.

Finally, expenditure accounts should be judged primarily by what is accomplished, for standard plant is economical because it is efficient, not because it is cheap—a truth frequently rediscovered by people new in the telephone business. It seems clear, then, that the exhaustive knowl-

edge of local plans, conditions and results necessary for the proper accumulation and use of the detail records needed is possible only within the Plant Department. This is obviously as true of maintenance and operation as it is of construction. The Auditor is bound to assist all other departments to the utmost extent in the installation and keeping of proper accounting systems, in the difficult task of devising proper methods for the analysis of supervision expenses and for distinguishing between construction and repairs; but, after all, his daily interest lies in the results as reported for use in the general books, records, reports, etc. Administrative accounting must develop that intelligent, incessant, first-hand criticism of costs and results which is absolutely indispensable in an efficient department.

If we are able to accept this conclusion as regards the items which can be stated in terms of money, it is even more inevitable as regards the technical matters, *e. g.*, the "cable record," routine inspections and tests, records of "hours per loop" and "feet per hour" in station installation, the "trouble record," line order delays, lost time and double cartage. These facts are no responsibility of the Auditor, he may be unable to interpret them usefully, but they are plainly fundamental in building up the cost totals, which we must record against the department concerned. The proper development of such efficiency—gauging records, whether kept occasionally or continuously—will be difficult unless taken as part of the thorough-going treatment of administrative accounting. The latter course should strengthen the appeal of such records to the pride and initiative of those immediately concerned since the figures which indicate relative progress or backwardness will have been accumulated on the spot, and in the daily course of their own work. Only in this way can we approach the great possibility of having accounting systems show the relative efficiency of individuals. The inter-departmental situation involved was summed up by Mr. DuBois over two years ago in the statement, "The knowledge of just what details are needed comes only through daily contact with the problem—such contact as only the field forces and the detail administrators can get. The accountant can simplify and harmonize processes and can develop, arrange and interpret general data, but the field for study and interpretation of specific data applying to his own particular work lies open to every man ambitious enough to enter it."

We believe, then, that the line of progress for accounting lies in the development of the functional idea by means of systematized administrative accounting and that this will prove a substantial help in the process of solidifying and vitalizing the telephone business. Any commendation of better methods is an affirmative argument for our proposition, for in this way the gains from better methods can be ascertained and compared, and further advances urged.

The principles and facts considered in support of our thesis show that Mr. Brandeis and others are not alone in their zeal for "efficiency," "unit costs" and the other watchwords of scientific administration. These ideas have been and are now in process of development within and of adaptation to the telephone business—a process that will end only when the telephone business ends, *i. e.*, when people stop talking.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

The following tabulated statement shows in concise form the number of private branch exchanges and their stations, and rural lines and stations lately obtained in this division during one month:

Private Branch Exchange Trunks and Stations

District.	Subscriber.	Trunk.	Sta.
Allentown	South Bethlehem Nat. Bank....	2	5
	R. & H. Simon.....	2	5
	Macan Jr. Co.....	2	5
	Eastern Penna. Power Co....	2	5
Harrisburg	Union Trust Company.....	2	5
	Pittston Gazette.....	2	7
Wilkes-Barre	Frank & Barber.....	2	5
	Brooks & Company.....	2	3
	G. Fred Lazarus.....	2	5
	Wyo. Val. Motor Car Co.....	2	5
Williamsport	Reading Iron Company.....	2	5
	Converting Works Susque-		
	hanna Silk Mills.....	2	12
York	Sweet's Steel Company.....	2	9
	Sheet Metal and Supply Co...	2	9
Totals		28	80

Rural Circuits and Stations

District	Rural Line.	Ckts.	Stas.
Allentown	North Bell Tel. Co.....	2	20
	Locust Level.....	1	14
Harrisburg	Gintners	1	10
	Shiremanstown No. 2.....	1	9
	Bradley No. 2.....	1	10
Wilkes-Barre	Red Mill.....	1	5
Williamsport	Wayne and Pine Creek Twp..	2	14
	Dunsburg and Island Tel. Co..	2	12
Totals		11	94

Allentown District. The Principal of the Coopersburg High School was furnished with the annual report of the American Telegraph and Telephone Company and a large size map of the United States showing the lines of the Bell system. He placed the map in the auditorium of the High School building and gave a half-hour lecture to the students, in which he pointed out the vast development of the telephone business in this country. He also dwelt upon the benefits of a properly managed public service corporation.

On May 1 a Bethlehem subscriber moved to Buffalo, N. Y., and upon receipt of the final telephone bill sent a check and letter addressed to the cashier, stating, "My object in addressing this letter to you is to thank you for your kindness and courteous treatment during my residence in Bethlehem."

During the week ending May 20, 2 prospects in Bethlehem who have been canvassed for the past 5 years were signed for direct and 2-party service.

The wife of an Easton merchant called the Commercial office and complained of not being able to reach her grocer on account of his busy line, saying she did not see why a man in business had a party line. It happened that her husband also had party line service at his place of business and had been canvassed for direct line service, but would not consider a change. A salesman was told about the complaint made by this merchant's wife and immediately called and obtained a direct line application.

The North Bell Telephone Company, Macada, Pa., is distributing postal cards to its subscribers on which the regulation announcement of service connection is made.

Three opposition subscribers in Allentown who had received service from that company for the past 8 years have discontinued it and signed applications for this Company's service.

On Saturday, May 6, a Bethlehem business man remarked to a commercial representative that he was going to open a new office on the following Monday to display gas ranges. He was unable, however, to hire a good baker to demonstrate the efficiency of a gas range for baking. The commercial representative remarked that he knew of such a person, but she had recently moved to Philadelphia. This person's name and address were obtained, but an answer from her by mail could not be received in time for the opening. It was suggested that he engage the woman by Bell toll service by sending a messenger to her address. In 25 minutes he came into the Commercial office and said he had communicated through the method suggested and arranged with her to do the work.

The value of rural telephone service was brought into prominence at the recent disastrous wreck at Martins Creek, N. J. The railroad company's lines were broken down and the Harmony Rural Line service was the only means of summoning medical aid from Easton, Pa., and Phillipsburg, N. J.

A 50 pair combination cable consisting of 15 pair No. 16 gauge wire for toll service and 35 pair of No. 22 gauge wire was erected last week for local service between Catasauqua and Allentown, a distance of 4 miles. The cable will greatly relieve the congested conditions between these points.

Reading District. The following letter was received at the Shamokin Commercial office from the minister of the Baptist Church in that town:

Inasmuch as I shall soon close my work in Shamokin, will you kindly remove the telephone from my house and terminate contract after said date.

Allow me to express my appreciation of the service and hope that when I am again located I shall be privileged to enjoy it. I felt, as many others do, for years that I would like to have the service, but that I was not able to afford it. I now feel that I could not get along without it.

Scranton District. Because of the recent fire which destroyed the central office of the opposition company in Scranton, this Company received 50 applications for service over the counter within 2 days. At the close of the third day all installations had been O. K'd. Among the applicants obtained are prominent Scranton people who have been solicited for years.

The violent storm which swept the Lackawanna Valley on Monday evening, May 1, affected severely the Scranton-Carbondale toll lines. Our gangs worked all night to repair damages and within 20 hours the trouble was all cleared. The opposition company's Scranton-Carbondale toll lines, with the exception of 1 trunk line, was still out of service on May 5.

On Wednesday, May 3, when the trade expansion excursion of the Merchants and Manufacturers' Association of Philadelphia visited the city of Scranton an immediate long distance connection was established. It was necessary for us to run 2 pairs of twisted wire a distance of one-half mile in order to make this connection. After the connections were made the patrons of the excursion thanked our Company for the courtesy they had received, and said it was the best record that had been made along their trip.

Wilkes-Barre District. In the last issue of THE TELEPHONE NEWS mention was made of a recent conflagration in the city of Pittston. The following excerpt from the Pittston Gazette indicates the measure of commendation extended the operators at that point:

Throughout all the excitement attending the fire, the operators of the Bell Company, whose exchange is located on the third floor of the Lamb building, directly across Cron Street from the burning building, stuck to their posts at the switchboard. Several operators were on duty at the exchange caring for the Sunday afternoon service. The operating room is on the east side of the Lamb building, and it was impossible for the girls to see the fire from their seats, but they were kept posted as to the progress of the fire, and they remained calmly at their places. When the sudden burst of flame came across Cron Street and it seemed as though it would be impossible to save the Lamb building, the firemen sent word to the operators that it would be a wise precaution on their part to vacate the building. The chief operator was at her home, and the operators on duty informed her by phone of the situation. Her reply was, "Stick to your places until I get there." The girls followed instructions. The chief operator was unable to pass the line of firemen who guarded the main stairway leading to the telephone exchange, but she knew an easy way to reach the operating room, and, accompanied by several other operators who had reached the scene, she went to the office of Dr. McGinty, in the Glick building, reached the second-story roof of the Lamb building and walked into the operating room on the third floor. In the meantime the electric light current had been turned off, on account of the danger from falling wires, and the operators, after being without light for a short time, secured candles from St. John's convent, by the light of which they continued to answer calls until the electric lighting system was again in service. The operators certainly displayed much nerve and coolness in a period of much excitement. At no time were their lives in any danger. Even though the main stairway should have been cut off by fire or smoke, the second-story roof of the Lamb building provided an easy means of escape. As a result of the faithfulness of the operators, the telephone service was in operation without a moment's delay throughout the fire.

The following is a specimen of the queer letters sometimes received in this district:

GENTLEMEN Will you do the favor to defer the settlement of you account until after the 20 this month, when I hope to be able to meet your demands the said Mr. Blank he want to Philadelphia the 15 of the last month to meet his brother at the Philadelphia he write to me thath on the 20 of this month he be here in pittston and pay your bill.

A prominent Wilkes-Barre clothier had his telephone removed some time ago in order to reduce expenses. He was the exclusive agent for a certain brand of holeproof hosiery. One of his best customers, upon learning that the service was disconnected wrote the manufacturers in a Western city and ordered hosiery direct. She explained why it was necessary to bother them, and said that if the Wilkes-Barre clothier wished to receive her trade it would be necessary to have their Bell telephone service re-established. The manufacturers evidently notified their Wilkes-Barre customer, because it was only a very short time afterwards when the clothier called his customer and informed her that she could order hosiery again at Wilkes-Barre by Bell Telephone.

The Granville Telephone Company, a Brandford County sub-licensee, having 128 subscribers, employs a blind operator at Granville Centre. He is 49 years of age and has operated the board to the satisfaction of the Company and subscribers for the last 4 years.

During the recent visit of the Philadelphia trade excursion members to Berwick, Bloomsburg and Danville, one of the members took occasion to remark on the speed and efficiency of the telephone service. At Bloomsburg he had placed a Philadelphia call, directing that, if possible, the connection be established at Danville, a 20-minute run from Bloomsburg. Twenty-four seconds after the train had stopped at Danville circuits had been connected, connection O. K'd and the patron had commenced his conversation. The transmission was entirely satisfactory. Nothing but the most favorable comments were heard.

Through the efforts of the Local Manager at Wilkes-Barre another subscriber has adopted the short period talking service to facilitate his business. This man, a large produce dealer, has arranged for service from Wilkes-Barre to his broker in Baltimore, Md., for one-half hour daily, from 9 to 9.30 P. M.

York District. Friday evening, May 12, the change from magneto to common battery service was made at Hanover. The new switchboard consists of 4 operators' positions and is equipped for 300 local subscriber lines, 20 rural lines and 10 trunk lines, with a capacity of 1,200 stations. The exchange is located in new quarters in the Sheppard & Myers Building, and the arrangement of equipment is adequate and standard in every way. Hanover has a population of about 8,500, is a manufacturing and agricultural centre and in all directions is becoming decidedly progressive.

The White Hall and Germany Township Rural Company, connected with the Littlestown exchange, at a meeting held on Friday evening, decided to provide additional circuits to take care of 20 additional subscribers desiring service in the rural sections.

At Elizabethtown an unusually good superceding job has been accomplished in changing subscribers to Class "E" rates. Considerable opposition was given this action, but all objections were finally overcome.

The Lancaster *Progress*, a magazine published for the interests and development of Lancaster and supported by the local Chamber of Commerce, published in its April number a very excellent article on the history of the Lancaster telephone development, in which article the progress of the telephone business and the local growth was thoroughly gone into from the first telephones that were placed in this city up to the present date. A very good picture of the building and of the Local Manager were also printed in connection with the article. The article covered over 2 pages of the magazine.

The Milton Grove Rural Line, which was organized November 29, 1909, receiving service from the Mount Joy exchange, at the present time has 32 subscribers. At a recent meeting it signed up 7 additional subscribers and made arrangements to run an additional circuit. Poles are being set and wire is being run to connect the new subscribers.

Owing to the rapid growth of business on the Lancaster Exchange within the last year, it has been found necessary to enlarge the plant. Over 50,000 feet of aerial cable and other necessary materials have been received, and within a short time the Plant Department will start running this cable to take care of the splendid growth in various sections of the city.

Baltimore Division

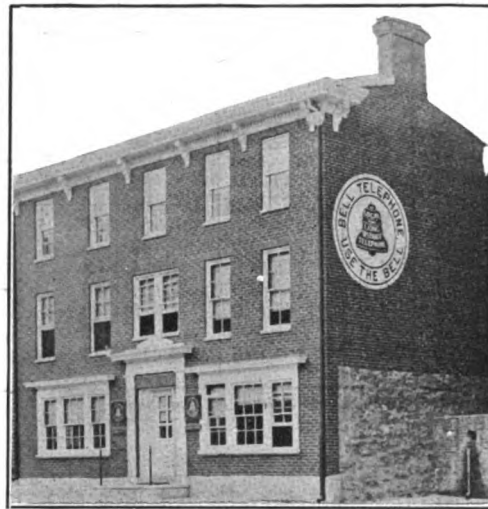
J. R. MOFFETT, Division Correspondent

Baltimore District. Hesson & Bowling, men's furnishers in Baltimore, have adopted the plan of Strawbridge & Clothier in Philadelphia in urging purchasing by telephone. In a large display advertisement appearing on May 15 they advertised a card listing men's wants. They invited prospective buyers to fill in the information and forward it to them so that they might keep this for future orders. A similar card was reproduced in THE TELEPHONE NEWS, April 1.

On the top of the Company's Light Street building in Baltimore there appears a new electric sign 72 feet long with letters 5 feet high and 270 Mazda lamps, reading "Bell Telephone."

This commendatory letter was received at the Company's local offices from a Baltimore association of citizens who are working together "For a Greater, Brighter, Better Baltimore."

The Executive Committee directs me to inform you of the resolution of thanks adopted for the very efficient and timely services you have rendered in supplying our headquarters with telephones. The quick coöperation with individuals and business concerns is a sort of encouragement that makes the rest of us work, and a united spirit of that sort will make Baltimore what it should be—one of the greatest cities in the United States.



Our Westminister, Md., Building
72-76 S. Main St

The spring issue of the Baltimore telephone directory, which went to press on May 15, was a record-breaker from an advertising standpoint. It represented the highest amount of advertising revenue ever obtained in Baltimore.

Were Diogenes in Baltimore at present his search for an honest man might be ended. The following letter received by the Cashier's Department seems ample evidence to that effect:

GENTLEMEN:

Please accept additional five cents on check covering amount of enclosed bill, with my personal apology for being too sure that you were in error in charging me with one Towson call on my April bill, which was used on February, as shown on your records. After the bill had been paid as corrected, I found that the call had been used by a lady who was visiting my home at that time. I simply want now to thank your department for your courtesy to me in

this matter when I raised the question last month, and to say that in the light of what has developed I was not satisfied until I had marched up like a little man and acknowledged my mistake.

Twelve minutes to travel 928 miles to Kewaskum, Wisconsin, and back to Baltimore—this is the record of a firm of malt and hop merchants of Baltimore on a message to the above point. The subscribers were in competition with several others for the sale of some malt and hops aggregating several thousand dollars and had 25 minutes to consummate the deal. They called "long distance," advised the operator of the facts and within the period had their connection, obtained quotations, called another subscriber in Baltimore and secured the order.

A few days ago the Revenue division discovered that an old colored preacher was entitled to a 25 per cent. discount for a period of 2 years. An employee of the Cashier's office, after receiving the bill, called up the minister and asked if a credit balance could be applied to his account.

The old man, elated at his good fortune, hesitated for a moment and then said: "Dis am a providential blessin', but I guess I'll continue to pay mah bills as I have in de past, an' you jes' send me de check foh dat amount." BARGAR.

Hagerstown District. The Back Creek Valley Telephone Company has completed its line connecting Shanghai and Ganotown, W. Va. Eight stations have been installed and 5 more will be added. The line terminates at the Inwood Exchange.

Extensive additions are being made to the plant at Martinsburg; 6,000 feet of cable is being strung to relieve congested districts.

Martinsburg, W. Va., had a net gain of 31 stations during the month of April. HAME.

Havre de Grace District. In connection with our educational campaign to have subscribers call by number instead of by name, a Havre de Grace subscriber who wanted "Aberdeen 10-1" surprised the operator by requesting "Central, please give me Aberdeen ten minus one."

A New York broker stopping at a local hotel placed a call for the New York Stock Exchange just 5 minutes before its regular closing time. The occasion was an important one and the operator promised to do her best. She succeeded in establishing the connection just 1 minute after the call was filed.

The following rural lines have recently been connected in this vicinity:

Harkins Rural Tel Co.	Exchange.
Onaker Neck Rural Tel. Co.	Belair
Pomona Rural Tel. Co	Chestertown
Long Green Rural Tel. Co	Chestertown Fork

GERBER.

Another Short Period Talking Circuit

The Treadwell Engineering Company, formerly of Lebanon, Pa., is erecting a large and modern plant at Easton, Pa., and in keeping with its ideas to be up to date in every particular, this concern has contracted with the A. T. & T. Co. for private telephone service to its New York office starting May 1.

The short period service, which the Treadwell Company has adopted, provides for a private wire direct to the New York office for 60 minutes each day, 30 minutes from 9.30 to 10 A. M. and 30 minutes from 12.30 to 1 P. M.

Throughout our territory, and especially in small towns and cities with large industries, the efficiency and economy of this class of service should appeal strongly to our patrons.

Telephone Societies

The Philadelphia Telephone Society

1420 Chestnut Street.

Note date: MONDAY, June FIFTH.

Speaker: M. H. Buehler, Auditor.

Subject: "Competition."

The Spare Pair Society

The monthly meeting of The Spare Pair Society was held in the Parkway Building, Philadelphia, May 17. A joint paper, which covered a large number of valuable points, was presented by H. N. Reeves and H. Hamilton on "Various Maintenance and Construction Methods." The paper was received with enthusiasm and led to a very lively discussion by Irvine, McGowen, Egan, Lafferty, Osborne, Babin, Spofford, H. B. Porter, Weaver, Jones, J. R. Y. Savage, Nelson, Wurst, Boyle and Mott.

It was decided to hold an outing and baseball game on some Saturday in June. The date and place are to be announced later by the House Committee.

The following committees were appointed by the President:

Executive:

Meixel, Chm. Lafferty
Lancaster Wurst
F. W. Figner McGowen
Babin

Membership:

Lancaster, Chm. McConnell
F. H. Williams H. B. Porter
Engle Street
Eipper C. Smith

House:

F. W. Figner, Chm. E. W. Smith
Eldridge H. R. Clegg
F. I. Daly Hilborn
I. B. Jones J. Gibson
Frost

Western Penna. Telephone Society

Over one hundred members and guests heard P. L. Spalding, Second Vice-President and General Manager, address the members of this society at Harrisburg on May 15.

His subject was: "A Glance at the Present Conditions in the Harrisburg Division."

Further comments were made by L. H. Kinard, J. H. Crosman, Jr., B. Stryker and S. E. Gill.

The Telephone Society of Baltimore

5 Light Street. June 7.

Speaker: W. D. Lindsey, Sales Department Western Electric Company, Philadelphia.

Subject: "Telephone Sales and A Visit to Hawthorne"—illustrated with stereopticon views. This will be the last meeting of the season.

The Delaware Telephone Club

At the first annual dinner held May 8 at Hanna's café, Wilmington, Del., seventeen guests and members were present. Attractive menus were provided. The club has as one of its members a telephone pioneer whose service dates from 1878. E. P. Bardo acted as toastmaster and every member responded.

The first banquet of employees of the Pittsburgh Division in that vicinity was held at Indiana, Pa., on May 1. The Plant, Traffic and

Commercial Departments were each represented. "Get-together" meetings will be held at short intervals.

Western Maryland Telephone Society

The regular monthly meeting of this Society was held at the Dagmar Hotel, Hagerstown, Md., May 9. It was decided to discontinue these meetings during the summer months. After the annual election of officers a banquet was held—attended by forty members and guests. Among those who responded to Toastmaster H. P. Shaffer were W. A. Tower, E. Corrigan, J. S. Francis, C. H. Weber, H. B. Plankinton, J. N. Weems, O. H. W. Hunter, A. C. Allgire, R. W. Stake, W. F. Zeigler, F. B. Dillard, R. N. Keller and E. O. Leighley.

The Telephone Society of Pittsburg

This society has suspended its monthly meetings for the summer. In September a general round up of old and new members will be held and it is planned to hold the annual dinner and entertainment in October.

Organization Changes

A new department has been created with T. P. Sylvan at its head under the title of Assistant to the Vice-President. Mr. Sylvan has charge of Public Service Commission relations of the New York Telephone Company and of The Bell Telephone Company of Pennsylvania and their Associated Companies.

A. Magunson, Inspector, Plant Department, Philadelphia Division, has been appointed Senior Foreman.

About June 1, the Down Town, East End, North and South Side Commercial Districts in Pittsburg will be consolidated and the Pittsburg office at No. 416 Seventh Avenue will be formed.

E. C. Bates will be Contract Manager and J. H. Moore will be Collection Manager.

During the latter part of this month office forces at the East End, North Side and South Side will be transferred to the Pittsburg office. Certain employees will be left in charge of the discontinued sub-district offices and branch offices will be maintained at the former locations.

E. F. Patterson will be engaged in supervisory work at the Down Town office and S. A. Wille will have charge of the South Side salesmen.

R. C. Mason, Special Agent, Commercial Manager's office, Philadelphia, has resigned to accept a position with the same title with the Western Union Telegraph Company, Philadelphia. He will have direct supervision of the delivery and receipt of messages both by boys and by telephone in the Telegraph Company's territory corresponding to that of the New York and of the Pennsylvania Associated Telephone Companies. The Telegraph districts are in charge of W. A. Sawyer, A. C. Terry and J. W. Reed, District Commercial Superintendents for New York, Pittsburg and Philadelphia and surrounding territories respectively. Chas. O'D. Lee succeeds R. C. Mason as Special Agent in our Company in charge of Western Union relations.

Relation Between Bell Telephones and Population

Cities in Our Territory Only. January 1, 1911

NAME OF CITY Arranged in order of per cent. increase in stations, 1910	Per cent. In- crease in Stations in 1910	Telephones per 100 Population	Estimated Population	Total Telephones	Per Cent. of Total Telephones						
					Business	Direct Lines	Party Lines	Private Branch Exchanges	Extension Sets	Public Pay and Toll Stations	
Allentown.....	36	4.0	90,000	3,651	45	9	74	9	7	1	
Camden.....	36	3.8	96,000	3,603	62	17	33	23	7	20	
Harrisburg.....	26	6.3	100,000	6,321	49	14	57	14	14	1	
Scranton.....	22	4.3	204,000	8,776	44	18	53	14	13	2	
Wilkes-Barre.....	21	2.8	175,000	4,852	52	13	57	17	11	2	
Johnstown.....	12	.9	72,500	617	73	27	47	12	6	8	
Philadelphia.....	11	7.5	1,567,000	116,661	56	23	25	28	12	12	
Pittsburg.....	11	8.1	692,000	55,932	57	18	45	21	10	6	
Washington.....	11	12.2	335,000	40,899	46	40	7	36	12	5	
Reading.....	11	4.6	106,000	4,884	53	8	64	13	10	5	
Trenton.....	11	6.6	109,100	7,199	40	24	46	15	10	5	
Erie.....	11	3.9	67,500	2,626	50	13	57	16	9	5	
Baltimore.....	9	7.1	604,000	42,840	52	29	33	19	12	7	
Wilmington.....	9	8.2	102,600	8,419	36	26	48	9	11	6	

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J. K. Martin, assistant to the Plant Engineer, Pittsburg, gave a stereopticon talk a short time ago before the Men's Club of the United Presbyterian Church in Bellevue, Pa. Mr. Martin took for his subject "The Modern Telephone."

R. D. Thomas, of the Engineering Department, led the formal discussion at the May meeting of the Pittsburg Chapter of the American Institute of Electrical Engineers.

Lawrence County Telephone Society

"Specification 3350" was the subject of the May 25 meeting held by this society in New Castle, Pa. R. T. McKinney was the speaker.

Chief Operators' Banquet

The Chief Operators of the Philadelphia Division held a good fellowship banquet at Kugler's Restaurant, Chestnut Street above Broad Street, on the evening of May 23. The menus were formed of five sheets of blue print paper tied together with silk cords of blue and gold. On one page there appeared a miniature diagram representing a map of the central offices of Philadelphia, at each of which was shown the name of the chief operator.

Do Not Clip Our Own Ads

The number of newspaper clippings which are received daily at the general offices, indicate a splendid relationship between the publishing companies and our commercial representatives and show that the entire field is alive to the importance of telephone news items and kindred articles which are constantly appearing in the newspapers.

This policy on the part of the field is intensely important and cannot be too highly commended or earnestly encouraged, because the articles serve to create favorable public opinion.

From time to time, however, there are found among the clippings received some of our own newspaper advertisements appearing in the daily papers. Inasmuch as all these are approved before the schedules are made up and forwarded, and because complete copies of the newspapers in which they appear are forwarded to the Publicity Manager in accordance with the routine, they need not be clipped and forwarded to the Commercial Manager, as are the news items.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

JUNE 15, 1911

NO. 12

WILLIAM R. DRIVER, JR.

TRAFFIC MANAGER

The Bell Telephone Company of Pennsylvania and Associated Companies

THE DISTRIBUTION SYSTEM OF A TELEPHONE PLANT*

H. B. Stabler, Plant Engineer. Washington, D. C.

OUR Traffic Manager, William R. Driver, Jr., was born in Beverly, Mass., in 1872, where his parents still live. His early education was received in the local public schools and in Hopkinson's School in Boston, a private preparatory school. Of the universities, Harvard was Mr. Driver's choice, as it was that of a number of our other officers.

In 1893 the American Bell Telephone Company had charge of the assembling of all instruments (then all general system) manufactured by the Western Electric Company. This work was done in the Boston laboratory of Dr. H. V. Hayes, Electrical Engineer, who had begun to engage for it men from the colleges and technical schools.

Mr. Driver, the third "telephone student" so employed, devoted about one year to this work and to the inspecting of the manufacture of copper wire.

At Lexington, Mass., late in 1893, he was assigned by Theodore Spencer—with whom he worked—to assist in the supervision of the first common battery switchboard installation. Lexington then had about 42 stations and the equipment, designed in the Boston laboratory, was purely experimental.

Early in 1894 Mr. Driver was employed by E. F. Sherwood, Superintendent of Traffic of what was then the Metropolitan Telephone and Telegraph Company (now the New York Telephone Company), as one of a force of service inspectors, then being formed. In this work he served one year, working on Manhattan Island, when he was made Assistant Manager and Wire Chief of the Harlem Central Office, in charge of the operating and maintenance of about 800 stations. A year later he was transferred to the Assistant Managership of the Spring Street Central

Office. There he remained until the winter of 1896, when he was employed by the American Telephone and Telegraph Company as Chief Operator of the New York long distance division at 18 Cortlandt Street.

On October 22, 1897, Mr. Driver came to Philadelphia as the first Superintendent of Traffic of The Bell Telephone Company of Philadelphia. There were then about 6,500 stations in service, divided among five central

(Continued on Page 2, Column 3.)

THE intent of this paper is to give a general idea of some of the problems encountered, the methods of handling them, and the solutions obtained in connection with the design and construction of conduit, cable, pole and wire lines for telephone distribution; and to call attention to some very important differences between these engineering problems in telephone distribution and those met in the distribution of such other public utility service as electricity for light, heat and power purposes, gas, and water.

While there is a great amount of analogy between the distribution to customers of electrical energy, gas, or water, and the distribution of telephone service, there are also dissimilarities of the greatest importance. The ice man and the postman, who visit our doors daily, perform services which have many points of similarity, but when the ice man delivers us our 5 or our 50-pound lump of ice, he takes the piece most convenient to his scales, and if it weighs the proper amount and is clean and pure, we are satisfied. But the postman, when he brings us our mail, cannot merely count out to us the proper number of letters from his pouch and expect us to be satisfied; he must, with unfailing accuracy, deliver Brown's mail to Brown and Smith's mail to Smith,

and our mail to us. In the case of electric light and power, gas, or water service, the supplier generates, manufactures, or collects a commodity which is conveyed in bulk, as it were, to the localities of the consumers, and distributed and sold to them in retail amounts. No particular gallon of water, cubic foot of gas, or watt hour of electrical energy need be

(Continued on Page 8)

* A paper presented before the Washington and Baltimore Sections of the American Institute of Electrical Engineers.

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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N. HAYWARD, Chief Engineer

Managing Editor, E. H. HAVENS, 1280 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII JUNE 15, 1911 No. 12

A Summer Thought

DID you ever get thoroughly tired of a job? Did you ever get so fagged by it that you felt as though you'd like to see what the inhabitants of Korea are doing—or any other people a *long way off*? And yet—for “good and sufficient” reasons you still wished to make those daily trips to business.

If you have—and it isn't unnatural with us humans even though we like our individual work and the business in general—then you should adopt the practice of many another who has had the same feeling.

“Back to the soil” gives to thousands who have become tired of routine work, new views of life. It relieves the brains of cares of all sorts, the eyes of resting upon monotonous work or vistas, the muscles of assuming the ordinary positions and the minds and bodies in general of that feeling of accomplishing to-day no more than they did yesterday.

The very simplicity of planting something and of watching its progress in growth transforms ennui into interest and inertia into activity.

From the time when the first effort is made toward cultivation, to the gathering of the last products, be it fruit, flowers or vegetables, the plot of ground never presents the same appearance to a practised eye on two successive days. Monotony is impossible in so far as it relates to the appearance of the growing product.

History isn't old enough to tell us who discovered this simple remedy for mental weariness. It does, however, give us examples of those living thousands of years ago who found the soil and its cultivation a delightful recreation.

To some of us the plot is a farm, ex-

tensive and varied; to others it is a vacant lot or a modest back yard and to still others a few potted plants or window-boxes—but the variety is there.

The devotee of Izaak Walton can teach us all a lesson—that of the demands of the human body for rest—and a temporary change of occupation is rest. It has been said that it is an art to be able to recline and relax both muscle and brain. Some of the world's greatest workers have advocated the “all work and no play” maxim. Of our nation's later executives, Cleveland fished, Roosevelt gunned and Taft golfed—at times when weighty problems were being considered.

But it is not a relief to *force* oneself to engage in an occupation which in itself is distasteful. The choice must rest with the individual and whatever the inclination may be—golf, water sports, nature study, baseball, tennis—if it is a distinct change from the daily work, it must be beneficial.

And the man or woman who adopts any of these forms of relaxation benefits by the change in a hundred ways and becomes a broader, a better satisfied and, in general, a better employee.

Practical Jokes

The ring of his telephone bell caused a Pittsburg physician to jump out of bed the other night. Imagine his feelings when he was requested to blow out the electric light in the street. Thinking he knew the perpetrator he called the subscriber upon whom he blamed the practical joke and said: “This is the Telephone Company. I just called up to see if your telephone is working all right.”

It happened that the physician's guess was incorrect and thus a second subscriber was awakened and annoyed in the middle of the night as a result of the first so-called “joke.” Subscriber No. 2, thinking this was the routine work of a telephone employee, did not hesitate to express his opinion against a company that would permit such a breach of good judgment.

The moral is plain. Whenever we, as telephone employees, hear of these *good jokes* (?) being practiced on telephone users, we should make it plain at once that such occurrences are a detriment to good service. Not only do they require unnecessary operating on the Company's part and, with message rate service, foolish expenditure on the part of the caller, but they also reflect against telephone service. The purpose of the telephone is to save time and these happenings defeat its object in that they waste time.

A Forceful Editorial

Under the caption “Bad Language via the Telephone,” the Philadelphia *Evening Bulletin*, June 5, makes the following noteworthy contribution to the cause of the telephone operator:

Because of abusive language used over a telephone stationed in the law library at the City Hall, the Chief of the Electrical Bureau ordered the telephone disconnected for three days. It was a case of either cutting out the bad language or cutting out the telephone.

It is a pity similar action can not be taken in other places, public and private, to check the use of telephone English which is vulgar, obscene or blasphemous. There are men who apparently believe themselves privileged to talk by wire in a fashion they would not dare to think of otherwise. If there happens to be a minute's delay in making a connection, the operator is treated to a line of abuse calculated to make her ears burn from anger and mortification in her helplessness to rebuke her insulter. The telephone companies have endeavored to check the evil, but with small effect.

The man who employs a telephone to express himself in an impolite and insulting manner, knowing that he is tolerably safe from punishment, is on a par with the man who writes anonymous abusive letters or postal cards. They should be sharply “called down” whenever opportunity offers, and taught that telephone courtesy is something which they are bound to respect if they are not to be classified as cads or as blackguards.

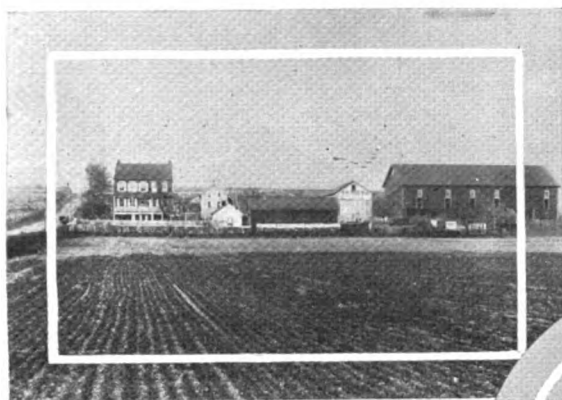
As the article states, telephone companies throughout the country are continually waging war on persons who practice this form of meanness. It is a hopeful sign of the times when editorial writers voluntarily enter the lists and express their sentiments as plainly as in the preceding quotation.

William R. Driver, Jr.

(Continued from Page 1)

office areas—Market, Kensington, Germantown, West Philadelphia and Ridge Avenue.

In 1898 the duties of the Delaware and Atlantic were added, and in 1905 the Diamond State. In 1908, when the Harrisburg, Baltimore and Washington Companies were included in our territory, Mr. Driver became also their Superintendent of Traffic. In 1910 the Pittsburg Company was added and, shortly after, the title was changed to *Traffic Manager* of The Bell Telephone Company of Pennsylvania and Associated Companies.



The Pennsylvania German and the Telephone

By Arthur G. Kingman, Western Electric Company

"Ohne Hast—Ohne Ruhe"

(Without Haste—Without Rest)

A "Vermont Yankee" by birth and breeding expected to find, if reports of travelers could be depended upon, a peculiar class of people in the eastern counties of Pennsylvania, commonly spoken of as "Pennsylvania Dutch." Much to his surprise, he has found, upon frequent trips through the territory mentioned, a class of people of exceptional intelligence and thrift. In the rural sections the farms are in a surprisingly well-kept and prosperous condition, and the farmer and his family well cared for and contented.

The Pennsylvania German has been grossly misunderstood and misrepresented ever since his settlement in Pennsylvania. He is naturally conservative and slow to take hold of new ideas. He studies each step carefully before making a move, but when he has been firmly convinced of the merits of the new plan, he goes forward with a tenacity of purpose that might well be emulated by his critics. He is fond of his home and family and is rarely seen away from them except in the pursuit of his business.

The history of the settlement of Pennsylvania by these people reads like a romance, but as it was briefly described in THE TELEPHONE NEWS of December 15, 1910, we will only mention that they came to America in the early part of the 18th century and settled in what are now the eastern counties of Pennsylvania.

Among these immigrants there were three or four different elements. First were the members of the Lutheran and Reformed churches. These people desired especially to settle down, build homes and accumulate some of the wealth which this fertile country was said to have. In addition to these, there were the sects known as the Schwenkfelders, Mennonites and Dunkards, who had been greatly persecuted in the Old Country, and who desired to reach some place where they could not only find a home, but worship as their consciences dictated. These two latter sects observed a rule of plainness in dress, which is adhered to at the present day.

Also among these settlers was a class of Mystics, whose cherished object was to put into practical operation the mystic and occult dogmas taught and studied in secret for many ages, looking not only to spiritual, but also to physical regeneration and perfection. They lived as hermits, often in caves, and observed the most rigid ideas of simplicity so that they might indulge in their study without interruption. As the tide of civilization came on, however, they were

pushed back, and finally found themselves in the locality now known as Ephrata, in Lancaster County. Here they founded probably the only strictly Protestant monastery and convent ever built in this country. They then became monks and nuns and did a great deal of good. They constructed a printing plant and printed the "Martyr Book," which was the greatest effort in the printing line that had ever been attempted in this country at that time. During the Revolutionary War wounded soldiers were sent here to be cared for. Many of these Mystics contracted typhoid fever at this time from the soldiers they nursed, such a great number dying from this cause as to break up the settlement. One of the convent buildings is, however, still standing in good order and is now used as a home for single women.

These Pennsylvania German settlers were the frontiersmen during the French and Indian War, and endured great sufferings at that time, although ever fair and honest in their own treatment of the aborigine. Conrad Weiser, a well-known Pennsylvania citizen, was a "Pennsylvania German." For thirty years he was the head of the Indian Bureau of the Province; a lieutenant-colonel and brave soldier during the war; a Judge of the Berks County courts, besides holding many other positions of honor and distinction.

The language spoken in this section at the present is the parent tongue (with, of course, some variations) which was used in southern Germany before the origin of what is now known as High German. High German (as it is commonly known) was originated by Martin Luther at the time he translated the Bible. This language is usually spoken of as "Pennsylvania Dutch," but this is incorrect, as there is nothing Dutch about it. The language, of course, has been subjected to use in an English-speaking country, and as new words of English origin sprang up they were incorporated in the Pennsylvania German vocabulary, with the result that a large number of English words are to be found in the speech of these people.

It is sometimes charged that there is a large amount of illiteracy among these people, and that there are numbers who, at the present day, cannot speak English. This, however, is greatly exaggerated, and the residents of those portions of Pennsylvania which are composed largely of men and women of German descent are as well

educated and refined as the residents of almost any other portion of our country.

In view of the facts above stated, the adoption of such a comparatively recent invention as the telephone, and its extended use through the rural districts by the farmer, who, in nearly every case, has built and owns his own lines and equipment, is nothing short of marvelous, and he deserves a great deal of credit for his perseverance. He has undoubtedly been greatly benefited by Dr. Bell's invention, for it has made a great change in his life. He and his family cannot be isolated when a telephone wire enters his home, no matter how far he may live from the railroad or village. Ten years ago a farmer with a telephone would have been considered a millionaire or extravagant, whereas now if he is without service he is considered unprogressive. Of course, there is plenty of territory not covered, and there are people who do not yet recognize the benefits to be derived from having telephone service, but they are surely being won over and, one by one, they are falling into line.

The expense to the farmer is not nearly so large as might be supposed. On the smaller systems, a great many of which have been constructed the past year, the total cost, including the first year's charge for connection with the nearest exchange of some existing telephone company, is less than \$30, and the farmer then owns his own instrument and his proportionate share in the line. The work is usually done by the farmers themselves, who dig the holes, set the poles and run the wire during their spare time after the fall harvest work is finished.

It may be interesting to note that in fifteen counties in eastern Pennsylvania alone there are over one hundred and fifty telephone companies similar to those described above, some consisting of only ten or twelve subscribers and built only for the personal convenience of the members, and without any thought of profit, while others have regular exchanges with paid operators, and furnish service to upwards of five hundred subscribers each, and pay a return on the investment of from twenty to thirty per cent.

Accounting Department Base Ball

On Saturday afternoon, June 3, at 29th and Cambria Streets, Philadelphia, a picked team of single men won in a baseball game with the married men also of the Disbursement Division of the Accounting Department. The score was 15-11, indicating, as it was, a good game. The batteries were:

Single—Fryckberg, p.; F. Fogel, p., and Doering, c.

Married—F. Shannon, p., and W. Fogel, c.

On June 24 a team from the Disbursement Division will meet a team from the Revenue Division in Philadelphia.

Pittsburg Division

L. W. GRISWOLD, Division Correspondent

Pittsburg District. That training received in the telephone business is useful to a man outside of business hours is shown by an incident that occurred in Pittsburg the other day. Several desk sets have been provided for the use of the patrons of a new restaurant in the Jenkins Arcade. The walls are equipped with jacks set at convenient locations. About a week ago a Pittsburg business man decided to telephone while dining. An attendant brought a telephone and inserted the plug. Several minutes later a Bell employee who sitting nearby was attracted by the impatient manner in which the telephone patron was jerking the receiver hook. So after this the telephone man stepped to the table and offered his services. He picked up the telephone, learned that it was dead and looked about. He uncovered the source of trouble at once—the waiter had inserted the plug in a *vacuum cleaning device* that stood behind a screen.

Butler District. F. E. Stewart has closed three private branch exchange contracts involving 40 stations. This representative has also induced Denison Brothers and C. H. Smith and Company to take advantage of our toll coupon book plan.

Newspapers report that the Butler Plant men established telephone connection with the Cleveland Chamber of Commerce train in shorter time than that consumed by any other workmen along the route of the excursion.

"A telephone is a very necessary adjunct in our household" writes a member of the cottage colony at Valley Camp who recently applied for telephone service in his cottage from May 1 to October 1. WARRICK.

Greensburg District. The telephone is a rival of the much advertised want ads of the newspapers. The other day a woman appeared at the Bedford office, said she had lost her watch and that she wanted to find it by telephone. She made three calls. The car in which she had left the timepiece was stopped, a search made and the property recovered. About 20 minutes and 30 cents were expended to find a watch worth about \$100.

A man in Illinois who was coming to Bedford to work sent a postal card ahead of him. The card said that he must have a Bell telephone at 11 A. M. on May 27. He explained that he would be in Bedford at that time and that he needed it badly. HUGGS.

New Castle District. An official of the Hammernill Paper Company, of Erie, is spending the summer at Pepperal, Mass. This does not mean that his supervision is dispensed with, for he uses Bell long distance lines and talks with the Erie offices every week day.

About 1,200 stations have been added to the Company's lines by a connection with the Mill Creek Telephone Company of Erie.

Our summer exchange of 12 stations at Exposition Park, Pa., was opened on May 30th.

A prominent Lisbon, Ohio, attorney has written this letter to the Company:

I have your receipt of May 26 for telephone service and tolls. I have read your inclosed card courteously expressing your wish for coöperation and suggesting that any irregularities of service be pointed out to you so that they may be immediately corrected.

Upon this suggestion I wish to say that your local service here is ideal. I regard it as the best possible, careful and efficient—not intermittently or by jerks—but always.

I have been using your telephone for years and have never had cause for other than appreciation and satisfaction at the intelligent and high-grade of service rendered. HARPER.



Uniontown District. Two trunks and 41 stations comprise the equipment just installed at the Hotel Brunswick at this place.

Employees of the Plant and Commercial departments of Uniontown have a base ball team. W. J. Duquin is captain of the nine, which is called the "Blue Bells." Three games won out of four played is the record to date.

About 100 employees attended a dance given in Uniontown June 5 for the benefit of the base ball team.

The Plant department has been equipped with a 2 cylinder motor cycle.

Colonel Moore, of Clarksburg, called the Clarksburg manager the other day and asked him to locate an engineering firm that formerly had offices in Worthington, W. Va. Manager Thompson did not know where the concern was now located, but inquiries were made by telephone and in 45 minutes Colonel Moore was talking to the firm which had been found in Leechburg, Pa.

Three hundred drops have been added to the switchboard at Monongahela, Pa.

CAHOON.

Indirect Publicity

Magazines and newspapers have taken the telephone as a matter of course. The writers of advertising, illustrators and special contributors all reflect the activity of the telephone in modern daily life. These contributors gladly seize the telephone as a symbol of the times and about it weave the fabric of the story to be told or pictured.

As a result, the telephone is receiving indirect publicity of the very highest class. One day last winter a Bell employee who appreciated this fact, tore off the cover of his "Popular Electricity" and threw it in a desk drawer. The halftone showed a Bell switchboard position in a way that could not be mistaken. From time to time this employee clipped and tore publicity pictures from his magazines and newspapers. More than fifty were gathered in this manner within a few months. Then a selection was made, and these are grouped in the accompanying illustration.

To Verify Time Charges

Ten chronoscopes—six minute stop-clocks—have been in use in the St. Louis long distance operating room as an auxiliary to the calculagraphs. These have been used experimentally on certain connections where disputes in time charges were anticipated. At the end of the 3-minute interval an alarm strikes, thus calling the operator's attention to the lapsed time; she then monitors the rest of the conversational time in order to be in a position to verify the charge as soon as the conversation is finished. The instruments are also useful in cut-offs of which the operator is aware. It is said in *Switchboard Success* that their trial has been quite satisfactory.

Chicago's New Building

The Chicago Telephone Company has purchased property at 185 Washington Street, near Fifth Avenue. On this site a 20-story building will be erected (220 feet x 181 deep) costing \$1,500,000.

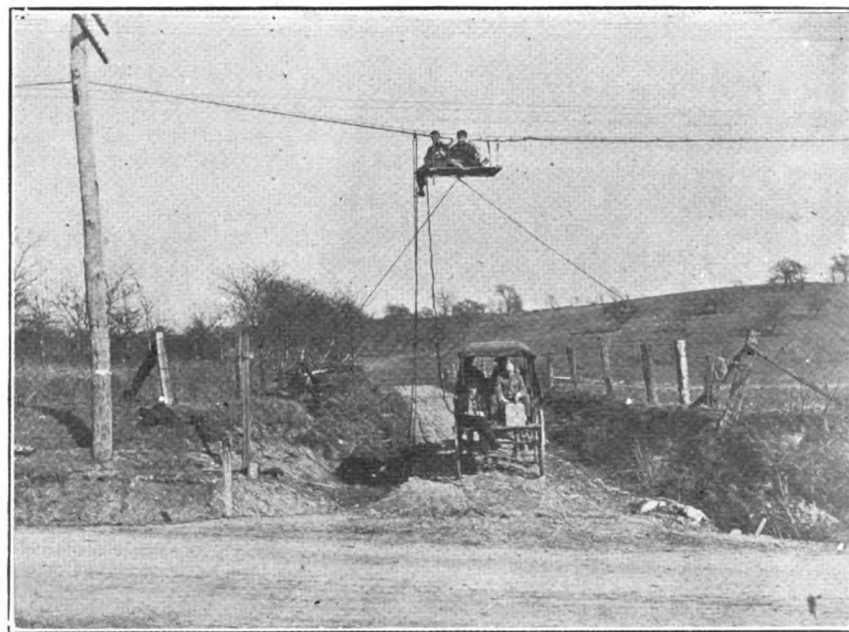
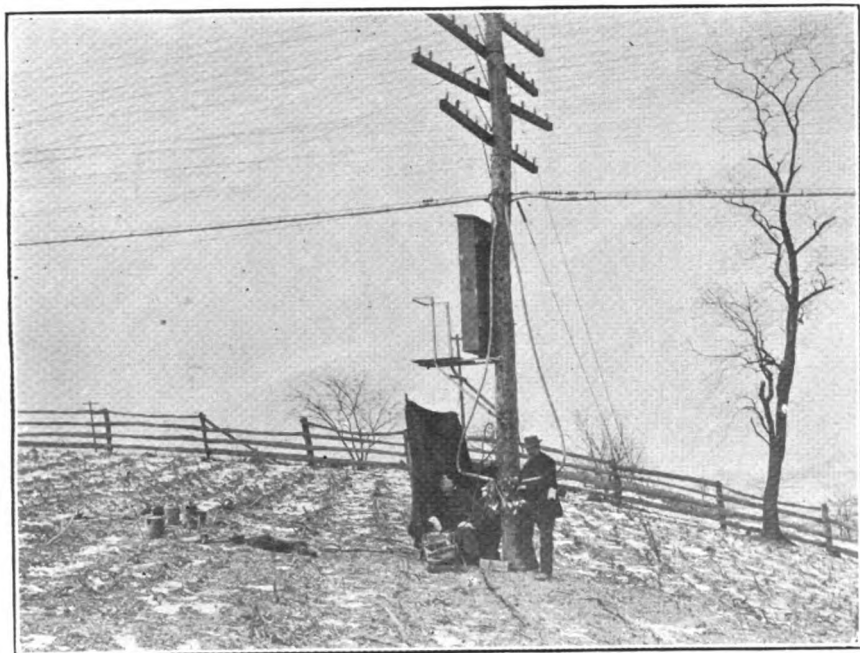
Philadelphia General Directory Changes

The summer edition of the Philadelphia General Directory, 215,000 circulation, is now being distributed. In connection with this some changes have been made for the purpose of eliminating unnecessary duplication in the distribution. The section called "Outside of Philadelphia" contained the listings of those subscribers within a radius of approximately fifty miles of Philadelphia as well as those of the Diamond State subscribers—separately arranged in the back.

By the present arrangement the Diamond State subscribers will be listed in the Delaware local directory, as formerly, and in the Baltimore Elsewhere section of the Baltimore General Directory.

The Philadelphia Elsewhere subscribers will now receive their respective local directories together with a list of Philadelphia subscribers.

Philadelphia subscribers will find no change in their directories except that of the omission of the Diamond State section transferred to the Baltimore book.



Testing Monongahela Pa., Duplex Cable for Capacity Unbalance

The Monongahela Cable

R. D. Thomas, Engineering Department, Pittsburg

The new duplex cable between Pittsburg and Monongahela City is now in service. This is the second cable of the type in this country and is peculiar in the fact that its pairs are phan-

tomed. The actual number of physical conductors is 28 pairs of No. 16 B. & S. gauge, two pairs being twisted together in a quad in such a manner that 14 phantom circuits are available, making the total capacity of the cable 42 circuits.

The side circuits and phantoms are all loaded, special coils being used on the former in order to prevent losses in the phantoms.

Extensive tests were made on this cable both during installation and after completion. The tests made during installation were to determine the capacity unbalance of the phantoms and so splice the pairs as to reduce the cross talk between the circuits to a minimum. The result of this work, shown by the tests made on the completed cable, were very successful.

Baltimore Division

J. R. MOFFETT, Division Correspondent

Baltimore District. A large barn owned by Mrs. Lennox Burkhead, at Govanstown, was destroyed by fire. The subscriber, after this occurrence, called the telephone operator and thanked her for the efficient aid rendered. A number of calls to various people were made in a very short time and it was largely because of the prompt service that the fire was not more disastrous.

Salesmen Nagle and Schaffer, of the Baltimore sales force, recently obtained applications from the Homewood Apartment Company for a private branch exchange of 62 stations, and one from the Wentworth Apartment Company for a private branch exchange of 31 stations.

Another local salesman, E. T. Clifford, has superseded an obsolete four-party flat rate business service at St. Joseph's Hospital with a private branch exchange of 31 stations.

The gist of another "queer" letter is the following:

"I let you know that my friend Peter Skalchunes is very bad sik in a hospital, and he will be there some time next week, if he feels better to pay the account of money he owed you."

Westminster and Belair exchanges, having 612 and 3218 stations respectively, have been changed from magneto to common battery service. The cutovers were very successful and the subscribers are very much pleased with the improved service.

An installer at Frederick was given a surprise on May 31. While entering a house to install an instrument he was approached by a lunatic and was about to call for help when a

woman appeared and assured him that the patient was harmless.

Annapolis District. Prior to 1908 when the Annapolis, Md., local directory listings were printed in large type and not in accordance with our present standards there was a good showing of "foreign" advertising. When, however, the directory—together with all others in the enlarged territory of the Companies—was standardized in type and general appearance, somewhat of difficulty was experienced in disposing of the advertising space. The work has been progressing with each issue until the one now in press shows a record amount both in agate lines and in revenue. CLEMSON.

Hagerstown District. At Hagerstown a woman was called out of bed at 1.00 A. M. to answer her telephone. A neighbor had called her up to tell her that the electric light on the front porch had been forgotten and was still burning. PLANKINTON.



Black Finished Desk Stand

Black Finished Desk Stands

The Western Electric Company offers some interesting data to show the growing popularity of their standard black finished No. 20-S desk stand.

As far back as 1908 their Engineering Department, in conjunction with that of the A. T. & T. Company, began a series of experiments and tests to find a more serviceable finish than nickel for desk stands. The nickel finished stand was not proving entirely satisfactory owing to its tarnished and brassy appearance after a comparatively short period of service. In addition, the cost of refinishing was high.

These tests were carried on continuously for the next two years, and during that period sample stands were made up finished in enamel, celluloid, agate, rubber paint, rubber japan and even in a composition used on shoe-eyelets. After these stands had been subjected to rigid tests to determine their value under all conditions of service, it was found that the rubber japan finish then being applied by the Western Electric Company to their No. 20-S desk stand was the most satisfactory.

During 1909 the demand for this stand steadily increased, as it was found not only to equal the nickel stand in life, but in addition, to present a better appearance while in service. Furthermore, there was considerable saving in the cost of maintenance. In 1909 the sales of the black finished stand represented only 40 per cent. of the total output; by the end of 1910 the demand had risen to 63 per cent., and during the first three months of 1911, 81 per cent. of orders called for stands having the new black finish. The Western's total desk stand output exceeds half a million a year.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic District. The Atlantic City central office force completed a rather unusual operation on Wednesday, May 31. It had become necessary to install a new set of lead lined batteries. The local force set up a temporary set and at midnight on the 31st the No. 1 battery load was transferred to the No. 2 and from there to the temporary set without a single interruption of service.

The one hundred twenty-third General Assembly of the Presbyterian Church in the United States was held on Atlantic City's Steel Pier, May 16 to 27, inclusive. This convention brought together about 2,500 delegates from all parts of the world. As this is a rather conservative body it speaks well both for the moral status of Atlantic City and for its hospitality to have it come here twice in succession. This is the first time this has happened in the history of the organization.

A new central office was cut into service May 31 at Beach Haven, New Jersey, a well-known seaside resort on an island known as Long Beach. This town has a summer population of about 4,000, and two hotels accommodating 300 and 400 guests respectively. Beach Haven's stations have previously been operated from the Manahawkin exchange, but the increase of business made necessary additional and improved facilities. A No. 105, one-position magneto board, with a capacity of 30 subscribers' lines and five trunks, has been installed.

AVIS.

Bridgeton Sub-District. Two additional positions of No. 9 switchboard, 100 lines, are being installed by the Western Electric Company at the Bridgeton central office, making a total of eight positions. It is also reconstructing parts of the present board.

Four hundred seventy feet of cable is being strung at Cedarville, N. J., to take care of the increase in business.

A former Bridgeton subscriber who has been abroad for six months called at the Bridgeton Commercial office one day about 3 P. M. to sign a contract for service, stating that it was the first business he had transacted since his return. The station was working at 5 P. M.

LORE.

Camden District. On May 20 The Victor Talking Machine Company of Camden, N. J., signed a contract for branch exchange service providing for three unlimited local trunk lines and 51 stations, and a supplemental contract for two exclusive trunks to Philadelphia, with a right to send a large number of Philadelphia calls direct to Philadelphia over its own trunks. This contract supersedes an existing non-standard contract and gives us an increase of two trunk lines and 37 stations. This is considered an important change inasmuch as it duplicates about 30 opposition telephones which may be removed. One 100-line switchboard has been installed to take care of this business and part of our expected growth.

CROXTON.

Trenton District. In Burlington a private branch exchange under non-standard rate had to be re-signed. When the subscriber was notified, he decided to put in his own system. Later, by the efforts of our salesman, he was induced to continue his present service at a standard rate.

The following is a copy of a letter received at this office:

"DEAR SIR: I was down last Fryday but i had forgotten oll a bout coming a round but I don't think i will Bother with having the Fome in again at Present aney how. Yours respectfull,

GARWOOD.

Telephone Societies

The Telephone Society of Washington

The June meeting of this Society was held in the banquet room of the Fredonia Hotel, June 1. This meeting, for the purpose of electing officers for next year, resulted in the election of the following members:

J. W. Talbot, Chairman; W. E. McMahon, Vice-Chairman; L. A. Waters, Secretary-Treasurer; H. B. Stabler, R. G. Hunt, Members of the Executive Committee.

After the election, a supper was served during which time the Society enjoyed numerous short talks and musical selections by its members.

There will be no further meetings of the Society until the first Thursday in October.

The Philadelphia Telephone Society

At the June 5 meeting, the reduction of the annual dues from one dollar to fifty cents was favorably voted upon taking effect October 1, 1911.

M. H. Buehler's paper on "Competition" was commented upon by Messrs. J. S. Wiley, Coffin, Devereux, Repplier, Hayward, Nowell, Burton, Tower, Eipper, Kunkel, E. S. Bloom, President of the New York Telephone Society and P. L. Spalding.

The following committee was then appointed by the chair to nominate directors to fill vacancies caused by the expiration of terms of Messrs. Kilpatrick, Nowell, Berry and Staples. The directors to be elected in October will serve three years beginning with November 1911.

Nominating Committee.—J. H. Carroll, Chairman; H. Hamilton, T. Wistar, Jr., E. C. Wiley, W. W. Henderson.

The Transposition Club

June 20—6 P. M.
Down Town Hotel, Pittsburg.

Lawrence County Telephone Society

The Lawrence County Pa. Telephone Society met June 8, and continued its discussion of "Specifications 3050."

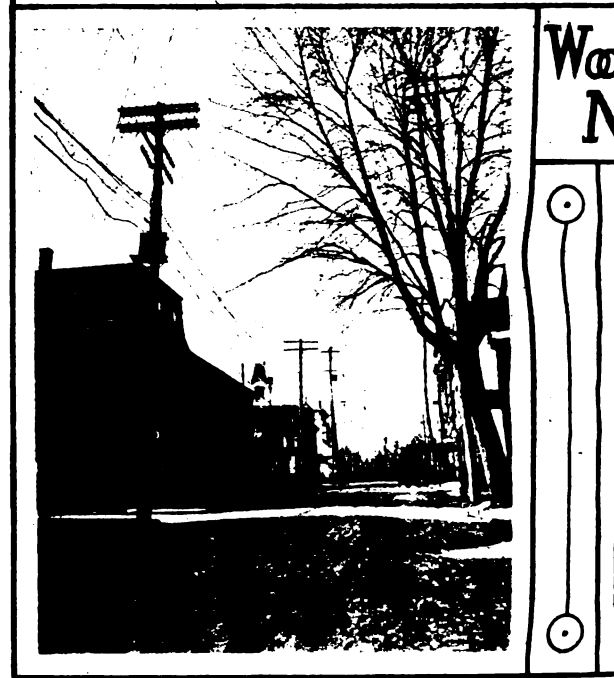
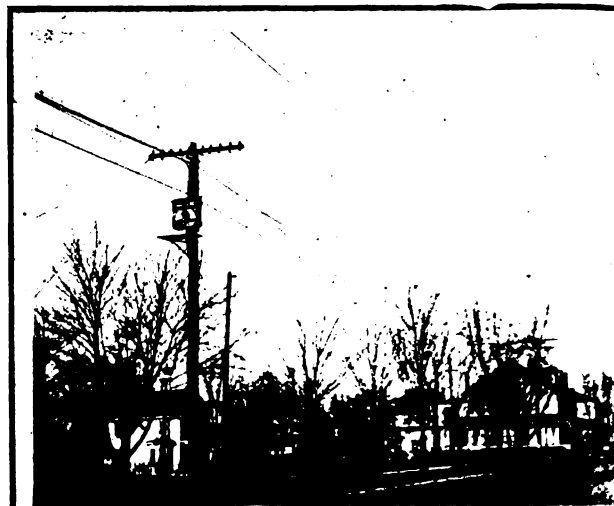
The Spare Pair Society

The annual outing of the Society will be held Saturday, June 24, at Flourtown, above Chestnut Hill Park. The feature of the afternoon will be a base ball game at 3 o'clock. After this game and other athletic events are over dinner will be served at the Springfield Hotel to all who wish to stay over and join in a tour of White City Park.

Northern Pennsylvania Telephone Society

Leonard Hall, Scranton, Pa.
June 16. 8 P. M.

At this, the last meeting of the season, G. E. Gable, Copy Manager, will read a lecture on "The Wonderland of the Telephone."



Woodbury, N. J., the county seat of Gloucester county, a residential town with about 5500 population and 533 Bell telephone lines. The aerial plant looked one year ago before all of our lines were installed. Within the past month all of these poles shown have been replaced by the Light & Railway Company.

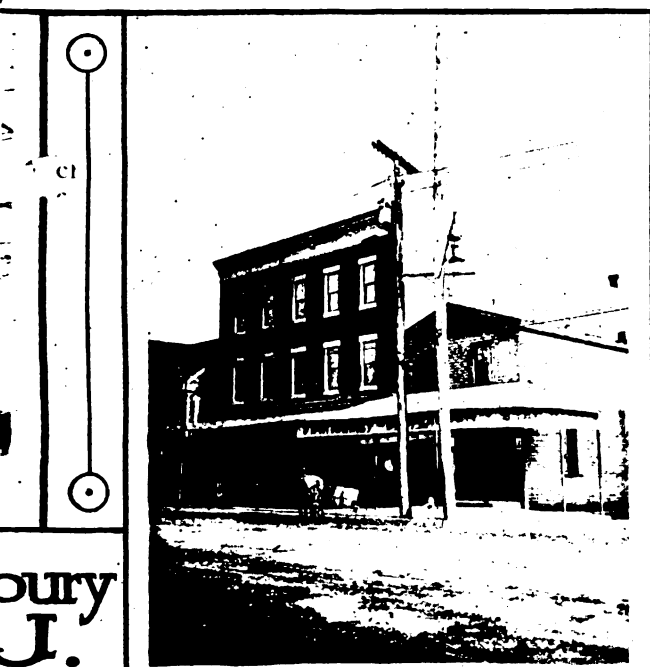
A Record Height

One of the tallest telephone poles in the world is where the wires of the Pacific States Telephone Company cross the Chehalis River near Aberdeen, Wash., according to an exchange.

For some years past a pole 90 feet high was sufficient to keep the wires clear of river craft. But the increasing passage of ocean steamers made a higher pole necessary, and a new one 126 feet high was set up. This pole is one single stick of Washington fir, 18 inches at the butt and eight inches at the top. The pole weight, 6,000 pounds.

The stick was cut at a point 12 miles distant and towed down the river, where it was erected by six men, using a 12 horse-power hoisting engine. For making attachment to the pole and moving it a five-eighths inch steel cable was employed, run through ten-inch steel blocks.

The pole was set 12 feet in the ground and guyed with four steel-stranded wires at the top, and also guyed about 40 feet from the top with four five-sixteenth inch stranded wires. The guys are fastened to dead men set in the ground to a depth of eight feet. These dead men are of cedar 8x8 inches in section and seven feet long.



is located about nine miles southeast of Camden. It is a stations. The four views here reproduced show how our construction on the main streets was placed underground, removed with the exception of those owned by the Electric

Novel Advertisement

A novel advertisement featuring the value of telephone orders appeared in the Philadelphia Bulletin of May 23 over the signature of Strayer's Business College. The following excerpt gives an idea of the breezy, conversational style in which it was written:

Blue Monday

On Monday, May 22d, Mr. Strayer certainly was blue! The trouble was, he couldn't begin to supply the demand for his graduates!

First, a letter asked for a young lady bookkeeper. She was sent and employed.

Next, a firm telephoned for a young lady bookkeeper with some experience—\$15 a week. When we told them of a young lady willing to change her position, they asked, "Is she one of your graduates?" (No others need apply!)

Then, a firm that has been employing our graduates for years telephoned us to send them 3 young lady bookkeepers. We could send only 1.

Harrisburg Division J. C. WEIRICK, Division Correspondent

Allentown District. A glance at a comparative statement of the gain in stations in the Allentown, Bethlehem and Easton districts during the last decade shows the following:

Jan. 1	Allentown	Bethlehem	Easton
1901	678	590	748
1906	1,083	1,199	1,680
1911	3,023	2,055	2,676
1911(May 1)	3,413	2,179	2,917

A salesman in Easton, while obtaining an application for additional equipment for a private branch exchange, was told the following incident by the applicant:

"While living in another town and having direct line service in my residence I repeatedly was called to the telephone early in the morning. Finally I became so indignant about it that I inserted a plug so that the bells could not be heard. For two mornings I slept without annoyance. On the third morning, about four o'clock, some one banged on my front door and aroused me, saying, 'What is the matter with your telephone? We have been trying tgo get you—your office is afire.'"

The experience of the subscriber demonstrates a fact sometimes disregarded—that we can never tell the importance of a telephone call.

Altoona District. Ridgway was mentioned as one of the important stops made by the Cleveland Chamber of Commerce on its recent Trade Excursion. The special train reached Ridgway at 5.25 P. M., May 24, and at 5.30 two special loops had been connected to telephones on the train, and calls were being made to Cleveland. Exceptionally good service was rendered the Cleveland merchants during their over-night stay in Ridgway.

On account of the necessity of obtaining additional room for switchboard facilities at Altoona, office quarters have been rented in the business center of the town to be occupied by the Commercial Department. The work of installing new counters is being pushed, and it is expected that the new rooms will be occupied sometime in June.

The Pennsylvania Railroad Company has ordered two new sections of switchboard to be used in connection with the present private branch exchange switchboard at Altoona. This is made necessary by the installation of additional telephones and the very heavy traffic which goes over the P. R. R. board.

A motorman employed upon the lines of a local street railway company states that formerly he had sometimes missed his run because of late reporting, but since he has had telephone service in his residence it has resulted in his putting in full time every month.

The Poplar Run Rural Line, a Plan "A" connection, has recently been connected with the Hollidaysburg central office. This 16-mile line serves 15 subscribers.

One of the operators of the opposition company at Mahaffey recently made the remark that a large number of subscribers in Mahaffey had been lost since the phenomenal rural development made by our Company at that point.

A man who had stolen a horse from a liveryman at Lewistown was easily captured via rural telephones. His progress from place to place was followed until he had finally reached Marklesburg, where he was intercepted by a sheriff and placed under arrest.

Harrisburg District. A traveling bond-salesman who was in the Harrisburg Office about a month ago sold bonds by telephone to customers at toll points throughout Pennsylvania. He stated that he sold between \$80,000 and \$100,000 worth of bonds and covered territory that it would have taken him more than a month by rail to cover. He was in our business office from 9 A. M. to 3 P. M., excepting an hour for lunch. He made about forty calls and his toll bill was \$42.50, exclusive of a number of reverse calls to Philadelphia. He did not mention what his commission would amount to on the sales, but he sold his firm entirely out of the stock of those bonds and was asked to return to the home office at Philadelphia.

A forest fire, which started at Warrior Ridge, Huntingdon County, and threatened to do great damage to the surrounding forests, was checked as a result of the farmers in that vicinity summoning aid with their rural telephones.

Reading District. Letters sent to owners of cottages regarding the establishment of an exchange at Mt. Gretna, a summer resort situated nine miles from Lebanon, have aroused considerable interest. One postal card has been received from Rome, Italy, from a Lancaster woman who has been spending the winter in Europe. She signifies her desire to subscribe for service at Mt. Gretna, where she owns a cottage.

A prominent resident of the city of Scranton says he is very thankful he is a Bell subscriber. One night during the past week a burglar entered his home, and upon opening the door of their sleeping apartments his wife was awakened and made an outcry. In an effort to escape, the intruder was thrown to the floor. The husband instructed his wife to telephone police headquarters. Immediately officers came to take charge of the intruder.

A salesman, covering Wayne County for the first time, met our representative while at luncheon in Hawley. He informed our representative that he wanted to go to Honesdale to call on some merchants in outlying points, but as he had to leave on the afternoon train he did not know how he could see them on that rip. Our representative suggested that he go to Honesdale and call them over the Bell lines. After reaching his hotel in Honesdale he called the subscribers, and later in the afternoon thanked our representative for his suggestion, saying he had landed a number of orders.

For a number of years the Erie Railroad Company at Susquehanna has employed call boys to summon their train and wrecking crews. Recently some changes were made whereby each employee was instructed to have a telephone installed. The operator is furnished with a list of names and call numbers of the several crews, and after the crews are selected, notifies them by telephone to report for duty at a specified time. This new method has not only proved to be a time saver, but it has saved a large amount of money for the company.

The Mountain Telephone Company of Landis Store, which connects with our company at Boyertown and Kutztown, is making great advances. The Company has moved its exchange from Mertztown to Topton, having purchased a property on Smith Street in that borough. The exchange will be in charge of John Keller. The Company operates two exchanges, one at Bally and the other at Topton. A trunk line has been constructed to Pennsburg and now connects with our exchange at Kutztown, Boyertown and Pennsburg. The service will reach a score or more towns in that vicinity.

The Distribution System of a Telephone Plant

(Continued from page 1)

delivered to any particular person. If each person gets his full measure of a product of proper purity or illuminating power, delivered at proper pressure, he is satisfied. The supplier can deliver his goods through a single or a few large mains or conductors, which ramify in every direction and diminish in size as they serve their thousands of customers. Telephone service, on the other hand, is not a commodity furnished to the consumer in the same sense as has been used above. It cannot be manufactured at a central station and furnished through a single large pipe or conductor to thousands of consumers. Telephone service, as furnished to a community or an individual, is a complete means of communication with all other patrons of the service. By faithfully furnishing adequate means of communication, the supplier of telephone service fulfills his duty. The thoughts and ideas which are communicated originate with the patron, and are transmitted to the particular other desired patron, and although they pass through the supplier's central office they are at no time his property, and further, they cannot be transported in bulk, but must at all stages of the process be kept absolutely separate from all other communications. Each conversation between two subscribers, in the same or different exchanges, requires, then, that for the time being a separate pair of conductors shall be maintained, connecting the one with the other. And this, in turn, requires that each subscriber (or in the case of party lines, each small group of associated subscribers) shall, at all times, have his separate and distinct pair of conductors connecting him with the central office. It is of interest to note that while one of the largest electric lighting and power substations in Washington uses copper conductors of a very large aggregate cross section, in order to supply the energy for a large section of the city for arc and incandescent commercial and street lighting, and other power and miscellaneous purposes, the output reaching at times the high figure of 22,400 amperes and 6,600 kilowatts, the total number of conductors which conveys this energy away from the substation busbars is only 128; while in the case of Washington's "Main" telephone central office, though the aggregate cross section of the distributing conductors is very much less, and the current conveyed by them is relatively very insignificant, the number of conductors reaches the large total of 32,800.

Another important consideration, to which attention has often been called, is the following: In most of its public utilities, such as water, gas, electric light, street car, fire alarm service, etc., each community is self-contained and substantially independent of all others; thus, the Consolidated Gas, Electric Light and Power Company in Baltimore, for instance, constructs and operates its lighting plant, including the determination of the proper frequency, phase and voltage for its transmitting and distributing lines, the design or selection of its engines, generators, transformers, rotaries, lightning arrestors, etc., with the utmost regard for a great number of local and manufacturing conditions, but with absolute indifference to the corresponding practices of its neighbors, the Philadelphia Electric and the Potomac Electric Power Companies. There is no occasion for uniformity of practice, as there is no connection or interchange of products between the several systems. But in

a comprehensive telephone system, while general manufacturing conditions, and multitudes of local factors in each community, must receive the same careful consideration as with the lighting system, it is also essential that the practices in the design and operation of the plant must be in a very large measure uniform in all of the communities of the system. In order that telephone subscribers in Washington may satisfactorily communicate with subscribers at other points, the telephone plant here must be designed and operated harmoniously with the Bell plant in Baltimore, Philadelphia, New York, Boston, Chicago, New Orleans, Omaha.

General Investigations

Telephone plant may be mainly divided into 3 principal classifications; central office plant, including the land, central office buildings and their contents; distributing plant, consisting of lines of conduits, cables, poles, and wires which radiate from each central office and connect with the numerous subscribers and with other central offices; and subscribers' equipment, consisting of the telephone instruments with their associated auxiliary apparatus and service wires. Our theme to-night is the distributing plant, but before we enter into a discussion of the details of such plant it will be appropriate to speak for a few minutes of the broad preliminary investigations and studies which are made, and upon which are based all specific plans for the construction of both distributing and central office plant. I refer to the so-called "development study" and "fundamental plan," which are made in the order mentioned, the latter being based on the former. The development study determines primarily the expected number and class of subscribers in each block or small group of blocks in the city at some future time, usually about 20 years ahead; the fundamental plan shows essentially the number and locations of the central offices which will be most economical to serve these subscribers and the general scheme, as regards locations and number of ducts, of the underground conduit system which must be provided.

Development Study

In making the development study, exceedingly painstaking efforts are made to arrive at the most accurate possible forecast of the number, class and locations of the future subscribers. The business management of the Company generally undertakes this part of the work, but by whomever it is handled, all available sources of information are consulted, including census reports, city records, real estate operators, transportation companies who may by the extension of their service promote the building up of certain sections, etc., etc. Each city block is considered, a count is made of the number of buildings of each class which it contains, and of the number and size of the unimproved building lots. For blocks which have not been subdivided into lots and regions that have not been laid off into blocks, after careful study, forecast is made of the future probable number and size of the building lots, and the number and character of the improvements which they will contain, and from this is deduced the expected number of direct line, party line, and private branch exchange telephone subscribers.

Fundamental Plan

Upon the Chief Engineer usually devolves the important and laborious work of making the fundamental plan. From the estimated numbers of the several classes of subscribers,

he readily obtains the total number of lines, and with this known, and a decision reached as to how many of the lines may consist of 22-gauge cable conductors, and how many, on account of their length, require 19-gauge conductors, the number of 600-pair and 400-pair 22-gauge, and of 300-pair 19-gauge cables, and therefore the number of ducts, is calculated, making due allowance for the fact that there is necessarily, at all times, a certain percentage of idle conductors in each cable.

Of course, it is not to be inferred that an absolutely accurate determination can by any process of study be made of the number of telephone subscribers 20 years, or even 5 years ahead, but a fairly good prophecy can usually be made, and by continually revising the study, so as always to be anticipating a long way ahead, very large savings will result as compared with the alternative method used in earlier times, of glancing over the map and deciding, "I guess we will locate our central office at the point 'A,' and we will lay 8 ducts on X Street, and 6 on Y Street and 4 on Z Street, and if this turns out to be too few, we can dig up the streets again and lay some more."

The locations of the subscribers are obviously not in the least subject to the Telephone Company's control, but wherever the would-be patron establishes himself, there must the Company's service be made to reach him, be he easy or difficult of access. The location of the central office, on the other hand, is a matter subject to the Company's discretion, and, as heretofore mentioned, its determination is one of the important points in the preparation of the fundamental plan. I cannot attempt here any detailed description of the exhaustive treatment which is given to this interesting problem, but suffice it to say that the study is an extremely complex one, involving both the present number and locations of the subscribers served, and the probable number and locations at the quite distant future time selected for the study; the present and future average number of calls per day to originate at each telephone; the proportions of direct line, party line, public telephone and private branch exchange telephones; the amount of toll and long distance service; the grade of transmission which is to obtain in the system; the price of real estate, and the locations of available building lots; proximity to the street or streets best suited for the construction of the main distributing leads; the rates of compensation which the Company will receive for the service which it renders; in short, a host of factors too numerous to mention, all inter-related and interdependent.

Assuming the locations of our central offices to have been properly determined, we will pass on to a very brief general consideration of the system of subways or underground conduits. But, of course, it will be understood that these two subjects cannot be treated independently of each other. The fundamental plan determines for a period about 20 years ahead not only the probable number of central offices in the community in question and their locations, but also the boundaries of the area which each office will serve, the number of subscribers and trunk lines terminating in each, the lines of conduits extending from them in all directions to serve the numerous subscribers and to connect with the neighboring central offices, and the number of ducts required at each point of each conduit line, including the reservations, if any, which must be made for toll and long distance cables.

In placing underground conduits, a large proportion of the expense is due to opening and

restoring the street, and therefore it is obviously specially desirable to take thought for the morrow; and by comparing the cost of laying additional ducts now, and carrying interest, tax, maintenance and depreciation charges on them while they are idle, with the cost of reopening the street later on to place additional ducts, it has been decided, considering the likelihood of changes in the art and the general uncertainties of the future, that about twenty years is probably the most economical period for which to anticipate future needs.

I have touched upon some of the general aspects of telephone engineering, and endeavored to give you an idea of the great complexity and difficulty of solution of the problems which the telephone engineer must face. Those who care to read a fuller and very lucid discourse on this subject are referred to a classic paper by Mr. J. J. Carty, Chief Engineer of the American Telephone & Telegraph Company, which will be found in the Transactions of the American Institute of Electrical Engineers for 1906. I will now discuss the subject of telephone distribution more explicitly for a few minutes, and will deal to some extent with engineering problems which, being more detailed and local in their nature, are handled by our local engineering corps in Washington. The local conditions, problems and practices which obtain in this city are, however, in a general way typical of what are to be found in other cities.

From several important standpoints, the ideal telephone distribution system for a city would contain exclusively underground cables and wires. The ideal condition may obtain in the business section, or wherever are found individual buildings containing considerable numbers of telephones, as in such cases it is usually practicable to carry branches of the underground conduit and cable system directly into such buildings. The next nearest approach to this condition is where the number of telephones per city block is sufficient to justify the carrying of a branch conduit and cable into the interior of the block for the purpose of serving that block exclusively. When this very desirable method cannot be employed because the telephone density, or the number of telephones per block, is not sufficient to justify the large expenditure which it requires, recourse must be had to alley pole lines extending from block to block, or, if the system of alleys in the blocks in question will not permit of this, to street pole lines; these pole lines carrying aerial cables or only wires on crossarms, as the circumstances may determine. Distribution from street poles is also sometimes necessary where the telephone development is sufficient to justify the method of distribution from within the interior of the block, but where public alleys are not available, and the property owners have not yet come around to the point of granting to the Company such right of way privileges as will enable it to install this improved system.

Conduits

Having decided upon what streets to build our conduit lines and how many ducts to lay, and having obtained the necessary municipal permits, and purchased the material, the trench is opened, and if terra-cotta duct is to be used, a 4-inch layer or "base" of concrete is usually first placed; single terra-cotta duct with a 3¼-inch circular bore in sections 18 inches long may be laid upon this base, or 4-way or 6-way multiple duct in 36-inch lengths may be used. In cases where the concrete base may be omitted, it is sometimes economical to use

creosoted wood ducts. A 1½-inch creosoted plank is laid on top of the ducts as a protection from injury when subsequent excavating is done in proximity to them. The trench is usually of such depth as to bring the top of the protecting plank at least 18 inches below the street surface.

Manholes are of varying sizes, depending largely on the number and size of the cables which must pass through them. In Washington they are usually made of brick, with either reinforced concrete or I-beam-and-brick roofs, but in some localities they are of the concrete slab or the monolithic concrete type. As far as possible, manholes are drained by permanent connections to adjacent sewers. Their locations are usually at street intersections or at street and alley intersections, but intermediate manholes may be required in order that the spacing shall not exceed 500 to 550 feet, or for the purpose of taking out branch cables for local distribution.

Cables

We next come to the consideration of cables. We have seen that where the telephones are few and far between they are reached by pole lines carrying open wires. As the number of telephones increases the open wires on the main pole line are replaced by aerial cables, so that the one line of poles may readily carry 50, 100 or several hundred pairs of wires.

As the increase in the number of subscribers goes on, the time comes when the pole lines and aerial cables give way respectively to underground conduits and cables. There is always to be expected a steady growth in the number of circuits which must be provided between the central office and the various parts of the areas served by that central office. Even if the time shall come when every office in the city has a telephone on each desk, and every residence has service in each room, the number of necessary circuits will still continue to increase, since the growth in offices and residences in the city is bound to continue.

Standard telephone cables are made which contain varying numbers of pairs of wires from 1 up to 600. In Washington the sizes in most frequent use are those containing 10, 15, 25, 50, 100, 200, 300, 400 and 600 pairs respectively, but sometimes smaller and intermediate sizes are used. As one would suppose, the price per foot charged by the manufacturer increases as the number of pairs in the cable increases, but in a lessening ratio, so that for one pair of conductors the price per foot grows steadily less as the size of the cable increases. When the cable has been installed for distribution purposes in a conduit, on a pole line, or in a building, as the cost of installing, splicing, etc., does not increase in the same proportion as the size, the decrease in the unit cost per pair for the larger sizes of cables becomes more and more pronounced. Especially does this apply in the case of underground cables when the proportionate part of the cost of duct and manholes is added to the unit cost of the cable pair. It is evident, then, that it is particularly desirable always to install a cable containing many more pairs than are immediately needed, but it would be going to an extreme to install a very large cable now at a cost of \$1.00 per foot, part of whose conductors would remain idle for 12 or 15 years, when a small cable costing from 20 to 30 cents per foot would be adequate for from 3 to 5 years. In determining the most economical size of cable to place on a particular job, or which of several possible jobs to do—whether to place underground conduit and cable, or poles and aerial cable, for instance—the first

cost is not, of course, the sole determining factor, but a study is made in which the "annual charges" of the several methods are compared, and that method is selected for which the annual "charges" are the lowest.

The principal factors that go to make up these annual "charges" are four: the interest on the money invested; the taxes; the maintenance, or the money which must be expended each year to keep the plant in serviceable and proper condition; and the depreciation, or the money that must be set aside each year to replace the plant with new plant when, through gradual decay or obsolescence, it has become unfit or inadequate for further service. One of the most frequent cases to be studied in this way is the proposed replacement of a present pole line carrying aerial cables by a line of underground conduit and cable. In such cases, the annual charges on the proposed underground plant are figured, and it will be found that there will be a large expenditure in interest; with the present aerial plant, the interest charge is much less, but, on the other hand, the maintenance and depreciation charges are far greater; by making a comparison of the annual charges for, say, the next five years, of the underground versus the aerial plant, and taking into account the so-called "transfer loss," if the present aerial plant, which still has, say, 5 years of wear in it, is to be removed from service now, the job which is the most economical in the long run is determined upon.

Some of the very first attempts to lay underground telephone wires were, as we look back upon them now, quite ludicrous. In Washington one plan that was tried, at heavy expense and with no success, was the placing of bare copper wires in a wood trough in a trench in the street, the wires being held in position and separated from each other by being drawn taut through holes in porcelain plates fixed in the trough; the trough was then poured full of tar, covered with a plank, and the trench filled. Washington's balmy summer climate, however, proved to be a little too much for this system; a gentle slope in the street caused the tar to flow toward the lower end of the conduit, where it leaked out of the containing trough and oozed up between the paving blocks to the street surface. This allowed the wires to cross with each other, making the experiment a failure.

Then rubber insulated cables, similar to successful telegraph cables, were tried and used to a limited extent for very short distances. As a less costly and more efficient substitute, cotton insulated wires were formed into a cable, impregnated with paraffin, and covered with a lead sheath; but the same phenomenon that seemed for a while to be an insurmountable obstacle in the way of trans-Atlantic telegraphy made speech difficult through a short length and impossible through a considerable length of one of these cables. The electrostatic capacity of a mile or so of the wire in such a cable, although not noticeable with the comparatively large, slowly interrupted currents used in telegraphy, was absolutely fatal to the transmission of speech, which depends upon the most minute alternating currents, of very high frequency and very complex wave form. If the little voice-current was not completely absorbed by the capacity of the conductor, it had its wave form so changed that it could not reproduce intelligible speech at the further end of the line. The preservation of the wave form is the important thing. It has been frequently pointed out that with the transmission of power over long distances by means of alternating cur-

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rents, the thing sought is to get the largest possible percentage of the developed energy delivered safely at the farther end of the line, while with telephone transmission energy loss is of small importance compared with distortion of the wave shape. The man who works on the problem of long distance telephone transmission is probably not at all horrified by the idea of energy losses in the line of 95 or 99 per cent., provided he can prevent material change in the shape of the wave.

After the early attempts with rubber-insulated and paraffin-core cotton-insulated telephone cables, the dry-core paper-insulated cable was developed, and there is now more than 7,000,000 miles of wire in use in such cables in the plant of the Associated Bell Telephone Companies.

By means of a wire drawn in while the duct is being laid, or by means of sectional rods pushed through the ducts from one manhole to the next, a hemp or wire rope is drawn through the duct by means of which the cable is in turn dragged into place. In some localities the rat-and-ferret method is or has been in practical use. This consists in sending a rat through the duct, followed by a ferret in harness, who, in his pursuit of his intended prey, draws a light cord through to the next manhole, by means of which a heavier cord or rope, and finally the telephone cable is drawn in.

The splicing of the cable, to make a long story very short, consists essentially in removing the lead sheath from, say, 18 inches of the ends, boiling the paper-insulated conductors in melted paraffin, so as to prevent both the absorption of moisture by the exposed ends and the passing of moisture back under the lead sheath; the splicing of the bared conductor ends together by means of tightly twisted joints, which are reinsulated by slipping over them tubes or sleeving of paper or cotton; and, after another boiling in paraffin, the enclosing of the entire splice in a lead sleeve which, though much larger than the cable sheath, is thoroughly sealed to it by means of carefully wiped joints.

The testing out and splicing of a large cable which divides up into numerous branches, having a total of, say, 50 terminals, and each pair brought out at several different terminals, is quite a complicated job, requiring that many "test splices" be made.

The necessity for the multiplying or duplicating of the cable pairs in two or more different terminals is readily understood. Suppose a case of a group of 12 city blocks in a good section of the city, a mile distant from the central office, each block containing now a half a dozen houses, and 50 per cent. of the houses having telephone service. Each block contains 50 building lots, additional houses are under construction, and the prospects are bright that in 5 or 6 years these blocks will be built up almost solid with houses of good class, and that 75 per cent. or more of the buildings will have telephone service.

From the main conduit line in the street a branch conduit carrying a 50-pair cable is run into the interior of each block, and suitable means are provided for carrying wires to each present and prospective house. The twelve 50-pair cables contain an aggregate of 600 pairs of wires, and if these were to be all carried back separately to the central office a mile of 600-pair cable would be required for the purpose, and initially but 36 of the 600 pairs,

or 6 per cent., would be in use. If the number of working pairs, by doubling each year, should reach 144 at the end of the second year, this would still be but 24 per cent. of the total, or, as it is often expressed, the cable would be working at only 24 per cent. efficiency. During these two years the heavy annual charges would have been carried on a mile of 600-pair cable which had been doing less than the work of a 200-pair cable. This making of a large expenditure for cable plant a long time before it can be made to bring in a return in revenue proportionate to the amount of the investment can be largely obviated by proper multiplying of cable pairs. For instance, in the case under consideration, it is probable that there already exists at or near the location of the 12 blocks a 600-pair cable of which there are 200 pairs now idle, say pairs 401 to 600. The 12 fifty-pair cables are spliced to these 200 pairs of conductors, the cables from blocks Nos. 1, 2 and 3 being each spliced to pairs 401 to 450, the cables from blocks Nos. 4, 5 and 6 to pairs 451 to 500, and so on, each series of 50 pairs in the main cable thus appearing in three of the blocks. This makes it possible to serve 50 subscribers in group "A," consisting of blocks 1, 2 and 3; 50 more in group "B," consisting of blocks 4, 5 and 6, etc., and possesses the great advantage of flexibility; that is, if the telephone growth is erratic, and results in an increase to 40 subscribers in block 1 and only 4 each in blocks 2 and 3, the 48 irregularly distributed subscribers are as well provided for as though there had been an equal distribution of 16 in each of the 3 blocks. And in like manner, if the total number of subscribers in blocks 1, 2 and 3 reaches 50, so that all pairs in the main cable from 401 to 450 are in use, while the growth in blocks 4, 5 and 6 has been small, it is very easy to provide for a further growth in the first group of blocks by merely transferring one of the 50-pair cables in the manhole from one series of 50 conductors to another in the main cable, so that, for instance, only blocks 1 and 2 will be served by pairs 401 to 450 and blocks 3, 4, 5 and 6 will be served by pairs 451 to 500. By such rearrangements of the multiplying, the greatest economy may be secured until such time as each block is fully built up and requires the exclusive use of its 50 pairs all the way back to the central office.

Another reason for multiplying cable pairs is its convenience and economy in furnishing party line service. This reason was of much more importance several years ago than it is now when nearly everyone prefers his own direct wire to the central office. It is readily seen how, with pairs suitably multiplied, several subscribers in different parts of a block, or in different blocks, may all be connected to the same pair of conductors in the main cable by wiring each to the nearest cable terminal.

In connection with conduit and cable construction the question is sometimes asked why the Telephone Company cannot connect each building by an underground service, just as in the case of the water, gas and electric light distribution. The principal reasons are very simple. As pointed out above, the several consumers do not each require particular units of these services, but each is tapped on to the large street main which furnishes all customers with varying quantities of exactly the same product. It is unnecessary to make the cross section of the main equal to the aggregate cross-section of its services; it will usually be found to be far less in carrying capacity, as it is sufficient that it shall be able to deliver a certain maximum load which is only a small

part of the possible load, it being a fact familiar to every one that if all customers should attempt to draw their maximum supply at the same moment, the pressure would drop to but a fraction of its normal value, and no one would receive the electric current, gas or water in sufficient quantities to serve their purposes. But with the telephone, each service, as we noted above, requires its separate pair of conductors all the way back to the central office, and if, after such a service has been established, it is relinquished, the revenue from this individually required plant ceases, while the interest on the investment and other annual charges go on undiminished. When electric light, gas, or water service is relinquished, the only plant which becomes idle is that from the house to the street main, and even this loss is usually "not on the Company," if I may so express it, as the investment for such service connections is generally made wholly or principally by the property owner.

With buildings fed by aerial telephone wires from a distributing pole, it is very easy, when House No. 1 gives up its service to use the cable pair thus released for House No. 2, or No. 20 or No. 40, as the connections may readily be shifted at a cable terminal on a pole or building; but the unavoidable dampness in manholes, and the great number of separate circuits involved, make it essential that all connections in manholes be made in compact, hermetically sealed, lead-armored splices, which cannot be opened for the shifting of connections except at great expense, and then only for a very limited number of times without serious impairment of the cable.

But even this is not all. A water, gas or electric light service once installed is usually suitable for any customer that may occupy the premises. There are exceptions to this, but they are comparatively few. But not so with the telephone service. Last year the occupant of House No. 1, we will say, had party-line service; in the autumn, he moved out and his successor took a direct or individual line, and next year probably another move will be made and the new tenant will contract for a private branch exchange, all of which requires continual changing or increasing of the cable pairs connecting with the central office. By a judicious application of the principle of multiplying, it is found that some of the practical drawbacks to the plan of running telephone wires into houses underground can be considerably mitigated, but, after all, it appears that the demand for underground connections in Washington is really very slight. This Company not only entertains requests for it, but in frequent instances, where handsome residences are erected, suggests and recommends it, on the basis of a division of the excess cost of installation between the Company and the subscriber; but the subscriber in most cases rejects the proposition, preferring to have an aerial service installed at the sole expense of the Company. I suppose, however, that this is but natural, and that if satisfactory gas and water service could be furnished aerially many persons would take such aerial service with free installation in preference to underground construction placed at their own expense.

The foregoing discussion has dealt with underground service for residences and small buildings where in general but one subscriber occupies the premises. For office buildings, hotels, apartment houses, and all other classes of buildings where either a large number of subscribers are to be found under one roof, or where a single subscriber is such an extensive

user of the service as to require quite a number of cable pairs, underground service is usually warranted and usually installed. In such cases the economical method of distribution is generally the following: A branch of one of the main underground cables—which, from their analogy to electric light and power practice are generally called feeder cables—is run into the basement of the building and suitably terminated, 25, 50, 100 or several hundred pairs being provided according to the requirements of the case. A subsidiary cable, called the house cable, is run from the point where the feeder cable terminates and distributed throughout the building, with terminals at the various locations from which the service wires can be most readily carried to the several rooms or apartments. These house cable terminals are usually multiplied, so that if the telephone growth is irregular, and excessive in certain parts of the building, the number of pairs provided will still be adequate. At the point where the feeder cable and house cable are terminated side by side, jumper wires are run from any pair in one to any pair in the other, so that any room or suite may be furnished with any class or quantity of service desired.

As mentioned heretofore, the next best thing to the exclusive underground service for each building is the exclusive underground service for each block. Having provided a branch of an underground feeder cable to the interior of a block, there are two general methods of completing the distribution, which are subject to all manner of variations and combinations, and both of which are applicable to blocks which have and which have not public alleys. The one, which is so well known as hardly to need description, consists in erecting a pole and terminating the feeder cable upon it, and swinging aerial service wires therefrom to the several houses; or perhaps a line of poles will be required, carrying either crossarms and wires or an aerial cable, by means of which the service wires are connected with the feeder cable. The other method consists in extending branches of the feeder along the rear walls of the buildings, back fences, etc., and mounting terminals at suitable locations, from which service wires, in twisted pairs with a specially durable rubber insulation, can be carried in metal rings or screw eyes placed on the walls and fences, to each building. Without going further into details here each method has its own advantages, and while in general the method of rear wall and fence cabling and wiring is more economical where there are many telephones in the block, and the pole method more economical where there are few. No set rule can be given for making a choice of method; the local conditions in each block must be considered and the question settled on its individual merits.

I must pass over without discussion the subjects of aerial cables and of the protection of cables from lightning and strong light and power currents, and electrolysis, but I will merely mention an incident that occurred in Baltimore some months ago. The fuses protecting a cable terminal in the kitchen of a hotel were found to open the circuit without apparent cause; an investigation showed that the larva of an insect was harboring in the brass mounted end of the fiber tube which contains the thin narrow strip of metal forming the fuse proper, and this larva seemed to be causing the fuse to part in some manner. We thought we had discovered a new sensation in the shape of another lead-devouring insect, but an authority at the Department of

Agriculture promptly identified the larva as that of a certain small scavenger beetle, and explained the entire phenomena by the opinion that larva only occupied the hole in the fuse mounting because it had seemed to the beetle a suitable place to deposit her egg, and the injury to the fuse metal was not deliberate, only incidental, and was caused by an acid substance which was voided or excreted by the growing larva.

Wire

There is not time now to go into the subject of pole lines, but a very few words about wire may be of interest. In the early days iron wire was used exclusively for telegraph and telephone purposes. Steel was found to be far superior to iron in tensile strength, but with the increase in hardness there was also an increase in resistance, which was a serious disadvantage; the purer and softer the iron, the less its strength, but the greater its conductivity. But even the best of iron wire had two drawbacks: its resistance, when used between distant points, and its tendency to corrode, even though galvanized, when subjected to the smoky atmosphere of the cities. Copper wire did not have either of these objections, but besides being very costly, it was altogether too weak for use on pole lines. For very long telegraph circuits a so-called compound wire consisting of a steel wire, which gave the necessary tensile strength, with a strip of soft copper folded around it so as to form a concentric cylinder, was developed and used to some extent. But a little later the growth of the telephone industry was responsible for the development of hard-drawn copper wire, which, though inferior to steel and but slightly better than soft iron in tensile strength, is yet very satisfactory, and soon came into general use for both telephone and telegraph lines.

At the present time, for aerial subscribers' lines, No. 12 or No. 14 gauge copper wire is mostly used in the city, and in rural districts No. 12 iron is in very general use. For toll and long distance circuits No. 12, No. 10 or No. 8 gauge copper is nearly always employed. For service wires, both in rear wall and fence distribution and in aerial spans, so-called rubber insulated twisted pair wire has now been developed to a state which almost seems to approach perfection in its durability and reliability. A compound containing, I believe, something like 30 per cent. of pure rubber, was long ago found to possess the necessary insulating and weather-resisting qualities, and at the same time was within reason in the matter of cost, but mechanically it was not sufficiently serviceable. A cotton braiding woven over the insulation gave it the needed protection, but the cotton was subject to rapid deterioration when exposed to the weather. The question then resolved itself into one of preserving the braiding from deterioration, and very satisfactory solutions of this problem have been reached in the present methods of filling or impregnating these braids.

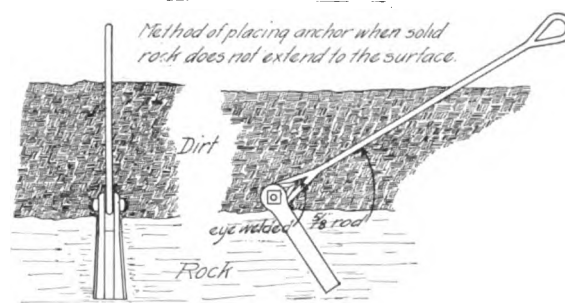
The latest innovation in the way of telephone line wire is the new copper-steel wire which is coming into extensive use, both bare and in rubber insulated twisted pairs. It is made by a patented process, by which a thin sheath of copper envelopes and is thoroughly united to a steel core. It has some transmission advantage over steel or iron wire of the same gauge, and it combines the tensile strength of steel with the corrosion-resisting qualities of copper. Although the cost of copper and of copper-steel wire is about the same for equal lengths of a given gauge, the superior tensile strength of the latter make it possible in many cases to use a much smaller gauge than with the former, with a consequent saving in cost.

As an evidence that there is no slacking up in the rapid advance of telephone science and art, I will conclude this paper by calling your attention to the striking fact that a comparatively few years ago the greatest distance for satisfactory conversation through cable was only something like 15 or 20 miles, so that a subscriber in Harlem or the Bronx, for instance, was going almost the limit when he asked for a connection to a friend in the southern part of Brooklyn; whereas to-day a 92-mile stretch of underground conduit from Wilmington, Delaware, to Washington, is under construction and nearing completion, and the close of the current year will probably see the consummation of the enterprise—that is, the successful operation of an underground cable, loaded with Pupin inductance coils, normally handling all telephone conversations between Washington and Philadelphia and New York, and eliminating, or at least making practically negligible, the danger of Washington being cut off from communication with the outside world, as has repeatedly occurred in the past when severe sleet storms have wrecked all overhead telephone and telegraph lines.

Approved Plant Estimates

At the last meeting of the Board of Directors estimates were approved for a number of interesting plant extensions and alterations. Among them the following are of particular interest:

1. Diamond State—\$10,600 for continuing the reconstruction of the toll lines. This money will result in improving the transmission and in safe-guarding the lines against winter storms.
2. In the city of Philadelphia \$7,000 was approved for expenditure on a central information table to be used by all the offices in Philadelphia.
3. Estimates providing for an expenditure of from \$25,000 to \$30,000 for conduit and cable in Philadelphia and the suburbs, were approved. This includes an extension of the cable plant in Oak Lane and Melrose, costing to about \$15,000. It provides for 500 additional stations and will eliminate a large amount of open wire on electric light poles.
4. An estimate for approximately \$5,000 provides for the cable entrance to the new terminal room at Harrisburg. This is one of the few cases where there are two central office manholes for one building.



Placing Guys

Difficulty frequently is experienced in placing guys where rock is encountered which does not extend to the surface of the ground. The Missouri and Kansas Telephone Company's method in cases of this kind is shown by the accompanying sketch. When occasion arises the foreman has an eye welded on the bolt end of the standard 3/8-inch guy rod to provide means for attaching the rod to the standard rock guy bolt.

This method is approved by the Engineering Department for use in this Company's territory.

Organization Changes

F. H. Kenworthy resigned as Revenue Supervisor, Philadelphia, on June 1st to accept a position in that part of the Accounting Department of the A. T. & T. Company associated with the Assistant Comptroller's office. He will have charge of the standardization of mechanical devices and their application to telephone accounting work.

P. C. Kramer has been appointed Revenue Supervisor, Philadelphia, in charge of Revenue Accounting work of the Philadelphia, Eastern Pennsylvania and Atlantic Coast Divisions, and reporting to the Division Auditor of Receipts, Philadelphia, vice F. H. Kenworthy, resigned.

J. E. Halfpenny has been appointed Chief Clerk to the Division Auditor of Receipts, vice P. C. Kramer.

The following Philadelphia changes are effective May 23: -

C. D. Van Duyn has been appointed General Clerk and Assistant to the Revenue Supervisor, in charge of the work of the Line Order Division, Trial Balance Division, Correspondence Division, and Addressograph Division, reporting to the Revenue Supervisor.

J. W. Shreffler has been appointed Chief Bookkeeper, in charge of the accounts of the Philadelphia, Eastern and Atlantic Coast Division, reporting to the Revenue Supervisor.

H. G. Mount has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 1, formerly known as the Down-Town District, reporting to the Chief Bookkeeper.

J. A. Finnie has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 2, formerly known as North Philadelphia District, reporting to the Chief Bookkeeper.

J. B. Tomlin has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 3, formerly known as West Philadelphia and Germantown Districts, reporting to the Chief Bookkeeper.

Mrs. A. V. Githens has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 4, which embraces the Commercial districts of Chester, Jenkintown, Main Line, and Doylestown and the Diamond State Telephone Company, reporting to the Chief Bookkeeper.

Miss C. Kellner has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 5, which embraces the Commercial districts of Norristown, West Chester, and Wilmington and the railroad accounts of the Eastern Pennsylvania Division, reporting to the Chief Bookkeeper.

Miss N. McCarthy has been appointed Supervising Bookkeeper, in charge of the accounts of District No. 6, which embraces the commercial districts of Atlantic, Bridgeton, Camden and Trenton and the railroad accounts of The Delaware & Atlantic Tel. & Tel. Company and The Diamond State Telephone Company, reporting to the Chief Bookkeeper.

B. E. Hilt has been appointed Chief Toll Clerk in charge of the Philadelphia, Eastern, and Atlantic Coast Toll Divisions, reporting to the Revenue Supervisor.

Miss M. Corson has been appointed Toll Supervisor, in charge of the regular toll billing work of the Philadelphia Division, with the exception of the Market, Lombard and Filbert Central Offices, reporting to the Chief Toll Clerk.

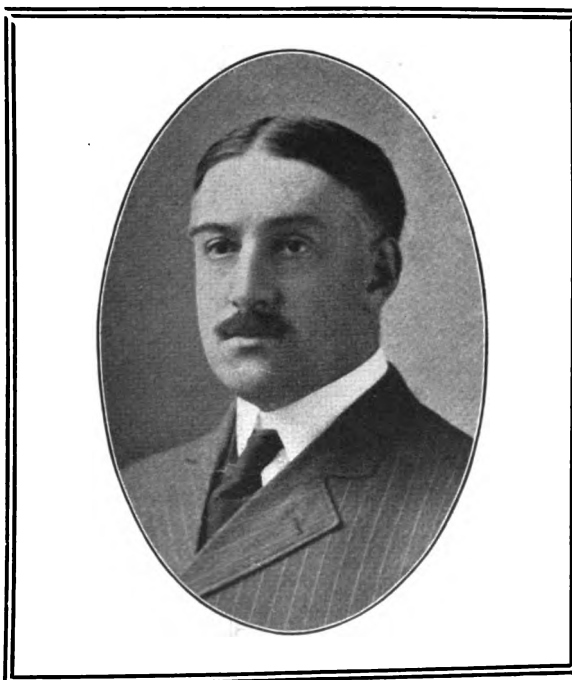
B. W. Trafford

Newly Elected Vice-President of Several Large Western Companies

Bernard W. Trafford, who is remembered by many of the employees of this Company, recently has been elected Vice-President of a combination of five large operating telephone companies in the Middle West.

Mr. Trafford is so well known in this part of the country that a brief sketch of his career will undoubtedly prove of interest.

He was born July 2, 1871, near Fall River, Massachusetts. Here he spent his childhood and part of his youth. After leaving high school he entered Phillip's Exeter Academy at Exeter, New Hampshire. Remaining at this institution one year to prepare for further



studies, Mr. Trafford entered Harvard in 1889 and graduated with the class of 1893.

To quote from an entertaining article which appeared some time ago in the Michigan State Gazette:—"Mr. Trafford is a rather peculiar

Pittsburg Division

F. W. Gendall and E. M. McCracken have been transferred from the office of the Sub-License Agent at Harrisburg to Reading and Williamsport respectively.

E. G. Hilton, central office man, has been transferred to East Liverpool, O.

G. A. Porterfield has been appointed Wire Chief at Wheeling, W. Va.

J. W. Mason, installer, Wheeling Short Line, has been made central office man at Uhrichsville, O.

J. T. Coughlin, formerly foreman, Plant Supervisor's office, has been made District Line foreman, Greensburg District.

E. A. Bartlett has been appointed District Line Foreman, New Castle District.

G. L. Herron, Special Agent, has been transferred from the Commercial to the Executive Department, Pittsburg.

B. F. Lloyd has been transferred from the Financial to the Commercial Department, Pittsburg.

W. E. Fluke has been appointed Assistant Collection Manager, Pittsburg.

man. He began to demonstrate his peculiarity when, as an undergraduate at Harvard, he not only made a national reputation as a football player, but secured an education at the same time. Another peculiarity is the fact that he knows a lot, but doesn't talk about it. The same thing cannot, however, be said of his actions. They speak for themselves."

Immediately after leaving college he entered the employ of the American Bell Telephone Company, spending a year or more in laboratory work under Dr. Hammond V. Hayes, the distinguished engineering expert, who then was the Company's electrical engineer. At the end of this period he was transferred to Joseph P. Davis, then chief engineer of the American Bell Telephone Company, with whom he worked for five years. About three years of this time was consumed in traveling through the West and Middle West for the purpose of investigating conditions there and to report on the organization, construction, maintenance and operating methods of the local Bell licensee companies. The remaining two years were devoted to general engineering work and to coöperating with various officials in the preparing of rate studies for different companies.

In 1900 Mr. Trafford accepted the position of Assistant General Manager of The Delaware & Atlantic Telegraph & Telephone Company. He held this position until the following year, when he was made General Contract Agent of The Bell Telephone Company of Philadelphia and its associated companies. Later, in February 1906, he was appointed General Manager of The Chesapeake & Potomac Telephone Company with headquarters in Washington, D. C. On July 9, 1907, he was appointed General Manager of the Michigan State Telephone Company, and on October 8, 1907, he succeeded to the Vice-Presidency of that company.

In the recent reorganization plan which brought together the Chicago Telephone Company, the Central Union Telephone Company, the Michigan State Telephone Company, the Wisconsin Telephone Company and the Cleveland Telephone Company, Mr. Trafford's ability again has been recognized. He has been elected Vice-President of these combined companies under B. E. Sunny, President. Mr. Trafford's headquarters have been moved to Chicago, where the local Bell company is building a new 20-story office building to house its officers and employees.

Employees of The Bell Telephone Company of Pennsylvania cannot have forgotten the characteristics of this popular official. One of his slogans, when connected with this Company, was: "Wherever there is need for communication, there we will place a telephone." This is typical of the man's methods. He is remembered as one who always was tactful, forceful and withal an exponent of the final test of strength—gentleness.

The introductory paragraph of a paper, which Mr. Trafford read before The Philadelphia Telephone Society some years ago indicates his methods in dealing with men and work. He said: "The subject which your Committee has assigned me I propose to handle without gloves, but I will try to follow the direction once given me for preparing sardines for the chafing dish. The recipe said, 'Chop off their heads, cut off their tails, take off their skins, rip out their backbones—but don't mangle them.'"

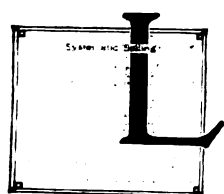
THE TELEPHONE NEWS



LEONARD H. KINNARD

COMMERCIAL MANAGER

The Bell Telephone Company of Pennsylvania and Associated Companies



H. KINNARD, Commercial Manager, was born forty-one years ago

in Harrisburg, Pa. In June, 1888, after having attended the local public schools, he entered a course of business study, shortly after the completion of which he was employed by The Pennsylvania Telephone Company in that city. An experience as the entire clerical force (clerk to the Secretary-Treasurer and to the General Manager) prepared him for the appointment in 1890 as Assistant Local Manager there.

Mr. Kinnard served successively as Local Manager at Carlisle, Lancaster and Harrisburg, in each of which positions under the territorial organization he had charge of the work of all departments.

In January, 1896, he was appointed Superintendent of the Southern Division with headquarters at Harrisburg. Six years later, January, 1902, he became General Superintendent, and three months after that, General Manager of The Pennsylvania Telephone Company.

With the consolidation of the various Companies in 1908, Mr. Kinnard became General Contract Agent. In 1910 he received the same title also of the Pittsburgh Company, and later the title was changed to *Commercial Manager* of The Bell Telephone Company of Pennsylvania and Associated Companies.

Practically all of Mr. Kinnard's business experience has been in the telephone field. Joining the latter interests when his Company was struggling for existence and was not paying dividends, he saw the returns grow to a substantial six per cent. as a result of hard and thorough work on the part of its employees. It is said by those with whom he used to be more

closely associated that he maintained a speaking acquaintance with all of the employees scattered over forty-four counties operated in by The Pennsylvania Telephone Company.

Mr. Kinnard's desire to learn the practical work of the telephone business led to his first change from clerical to outside work, and to his application is due his added responsibility in a constantly increasing territory.

Having entered the Bell employ prior to 1890, Mr. Kinnard is eligible to membership as one of the Telephone Pioneers of America.



A STANDARD SYSTEM

HOW "THE PENNSYLVANIA"

Has Put the Telephone to Work



THE Pennsylvania Railroad has a telephone system distinctly its own.

Among railroads, as well as among telephone experts, it is considered standard. It is one of the most efficient systems now in operation. Perhaps nowhere in the country is the telephone more extensively used in railroad work than on the Pennsylvania's main line and branch divisions in the State of Pennsylvania.

Briefly, the mass of descriptive detail concerning this system appears divisible into two main sections: First—the railroad's telephone system for the general efficiency of its employees, including the "calling" adaptation. Second—the system by which telephones replace Morse telegraph instruments in the handling of trains.

The adoption of the telephone for general efficiency naturally came first. June, 1894, is one of the earliest obtainable dates showing the number of telephones used and the number of messages handled, although it is recorded that as early as 1878 Alexander Graham Bell took a magneto outfit to the railroad company's Altoona office and made trials between that place and Pittsburgh. At

the first date mentioned there stood in Broad Street Station, Philadelphia, a one-position switchboard of an ancient type. Nine local stations were connected with it. Two trunk lines to the long distance office and 2 local trunks to "City" were sufficient. In addition the railroad had two private wires—one to New York and one to Pittsburgh.

The amount of business then handled was so small as to be amusing. One operator, of course, was able to attend to everything. Time hung

(Continued on page 3)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Chesapeake & Potomac
Telephone Company

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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Managing Editor, E. H. HAVENS, 1230 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII JULY 1, 1911 No. 13

Clay Feet

IN one of the advertising magazines a section is devoted each month under the title "Clay Feet," to describing and illustrating the work of bungling advertising men. All of the most noticeable examples which have come to the attention of the editor of that column are emphasized without gloves. Taken as a whole they evidence the Mr. Malaprop of the advertising field. While there are always differences of opinion as to what is good and what is bad in advertising, as in everything else, these frequent reminders play an important part in improving the tone and execution of advertising "copy" prepared by that magazine's readers for hundreds of media.

"Forty years to dinner time, so it seems to me," whistled the office boy as he hastily folded the carbon copy, jammed it into the envelope and filed away the signed original to which was attached the letter's important enclosure.

"Wait a minute; I'll get the boss," said another assistant. To the caller's interrogation, "Is this Mr. Brown?" he had given an affirmative reply and had then listened to the whole story.

"I can't sign that man for service," said the salesman, as he made a mental note to avoid that place in his future calls. "He doesn't appreciate the telephone's use in his business."

"This letter will not need comparing," hummed the stenographer, as she noted the proximity of the hour to closing time; "I'll save that much work."

"Good enough," said the splicer as he wiped a joint with cold solder. "Pin holes don't bother me."

"No use in trying to keep birds out," and the trouble-shooter dumped a bird's nest out of the terminal box at the top of an isolated pole.

"Plain enough," thought the operator, as she scribbled an indecipherable name.

"If you don't pay I'll have you disconnected," said the brass-knuckle collector.

"Put it up to the boss," said another who should have accepted the responsibility of the reply.

"I'll order ten thousand," said a stationery clerk, and he actually arranged for a forty years' supply of one form.

"Just sign here," said a right-of-way man. "It's only a matter of form anyway."

"Throw it away," directed a clerk to another as they destroyed several dollars' worth of usable advertising material temporarily stored awaiting directions for distribution.

"These new routines will probably not affect me," implied the subordinate, as he hurriedly sent them to file unread.

"It's so late now that we may as well not try to finish to-day. To-morrow will be time enough for this job," said another to his associate.

We wonder how many of our jobs give the impression of *clay feet*. How many times a day do we evidence the view-point of the subordinate who will always be a subordinate? How often do we skim through particular duties with a "good-enough" slam?

Practically every one of the clay feet examples mentioned above is a true instance drawn from a few years' experience among a large number of employees. As the term implies, the result in these cases would have been more satisfactory if the boss in each had done the work himself. Some of the errors involved more than the personal direction of the bosses would have cost, but it would have been a physical impossibility for the superiors to have done all of the work. Moreover, it is through the training of subordinates that others are educated to fill the higher positions. Anyone may make an error but no good man or woman will make the same one twice. Nor will the capable boss correct his subordinate's error himself. He will show the assistant the fault and the reason why the work is unsatisfactory and thus train him to broaden of his own initiative.

It's a serious fault to display clay feet, but not so fatal as to continue to plod over the boss' best plans and executions in that unpolished state.

Sweeping Against the Wind

"SPEAKING of causes of failure," said one of two telephone men at a recent after-luncheon discussion, "there is a man down in one of the extreme corners of this Company's territory whose case I can't understand."

"He is about 30 years old now, and a worker by nature. For 11 years he has been plugging away for this firm with an eye single to its interests. His work is clerical and always has been, more or less, but it is the sort of work that demands thoroughness. In that office he is a symbol for patience, courtesy and long suffering. A remarkable capacity for work is his chief characteristic. Several nights a week you will find him at his desk wrestling with some particularly heavy job. He is what I call a hard working man."

"But listen—that man has been at practically the same job for all those years. He has stood still. Others have passed him in the race. To-day his hair is thinning and he is prematurely aged from long hours of unremitting indoor work. He is still getting wages—not a salary."

"Now what do you suppose is the matter?"

"Perhaps his ideas and methods are out of date," suggested the other man.

"Well, perhaps they are. In fact, I happen to know that he does like to do things the old-fashioned way. But he does them well. That can't be the answer."

"But," persisted the other, "remember that we are in a new era. It strikes me that if your friend is so fond of the methods in vogue even 10 years ago his case is easy. You know as well as I that efficiency is the new war cry. Nowadays we must save minutes and pennies wherever we see a chance. The man who hangs back is doomed."

"Here is a clipping that I stuck in my pocket the other day that seems apropos."

"An Englishman, visiting New York, said to the American who was entertaining him, 'What strange people you are! In England we have our nobility, but here any man may rise to the highest positions. Now, I suppose,' continued he, 'that the man we see there cleaning streets may some day by chance be President of the United States.'"

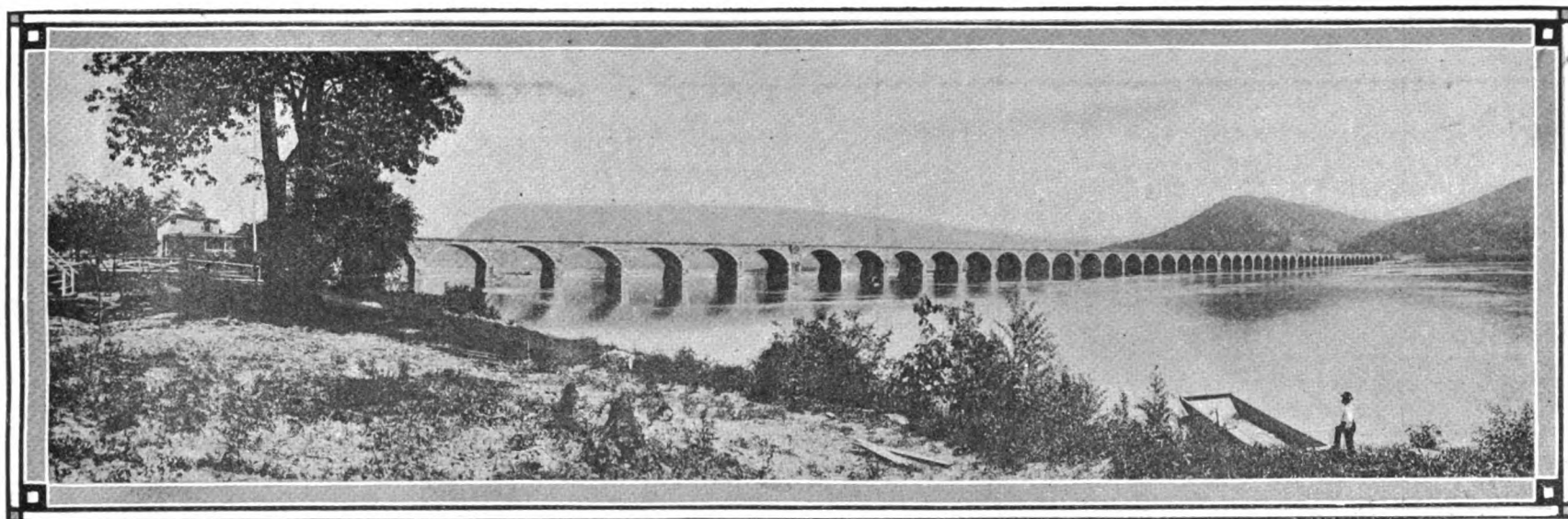
"The American turned to look at the street cleaner, and after observing his method of working for a moment replied: 'No, that man will never be President. He is sweeping against the wind.'"

The man who began the conversation was silent a moment, digesting this thought. Then he stretched out his hand.

"I say, old man," he said, "let me have that clipping."

"Why?" asked his colleague, in surprise.

"I want to send it to the man we've been talking about. It strikes me that you've 'rung the bell.' I'm going to let him have the tip, at any rate."



The New P. R. R. Four track Stone Bridge over the Susquehanna River at Rockville, Pa.
The Longest Stone Arch Bridge in the World.

A Standard System

(Continued from Page 1)

heavily on his hands, and frequently he had to sit idle for hours waiting for a call. It is said—confidentially, but on good authority—that the personal conversations held over the Company's lines were of rather extraordinary duration and the personal acquaintances formed by telephone were numerous, to speak conservatively. At Philadelphia a man acted as operator, but at most of the other points with which connections could be had the operators were women. This, of course, helped to make moments of leisure more interesting for the Philadelphia operator.

"I remember," said a veteran operator, "that the man at the switchboard in those days had to be able to write shorthand—and write it well. The officials had not become accustomed to using the telephone. Some of them would merely ring up and say—'Operator, take a message.' The transmitting of it was entirely up to the operator. This method undoubtedly came from long experience with telegraphic methods. You can readily see that the man on duty had to be both stenographer and telephone operator."

In July, 1894, we find the first record of telephonic growth at this point. The Railroad Company then had 5 local trunks instead of 2 and the number of local stations had grown to 23. At this time the traffic load was hardly worth the name. There were scarcely ever more than a half dozen long distance calls a day. The local calls seldom reached 50 in a 24-hour period. Three thousand calls of every kind a year were about the limit. Compare this with the million and a half calls handled at the Company's main exchange in Broad Street Station last year.

From this stage the system grew gradually, but not exactly rapidly. Additional trunks, local, long distance and leased, were cut in as conditions demanded. All lines were made metallic about January 1, 1895. The original switchboard was still in use at that time and about 50 stations were connected with it. Another one-position switchboard was added in the early part of 1897. This sufficed for a number of years—until January, 1901. When these two positions were removed, a four-position switchboard took their place. This was then considered a remarkable stride in the development of telephone uses. With the installation of this new switchboard, however, real progress began. The growth was more rapid, and as an instance in May, 1904, the

Railroad's records show that the stations connected at Philadelphia had increased twofold. Twenty-five local trunks were in use—an additional switchboard had been established at Bryn Mawr for the convenience of the Railroad's officers. The next step was the addition of two switchboard positions. This, with a final addition of four positions, completed the switchboard now in use. A standard No. 1 relay switchboard of twelve positions, 3,000 lines capacity, will replace it about September of the present year.

An interesting point in the railroad's telephone operation at Philadelphia is the fact that male operators always have been used. When the employee in charge of general telephone work was consulted about this, he stated that the railroad considered it a matter of efficiency, and believed that, although it is more expensive to employ male operators, the nature of the work is such that their employment is fully justified. At Broad Street Station 16 operators are now employed. Hours of duty are 8½ and 9 hours. Discipline is practically as strict as that maintained in the system of The Bell Telephone Company of Pennsylvania and by the Bell system throughout the country. All operators come to work at a specified time in the morning, have a ten-minute rest period before lunch, one-half hour for lunch and a ten-minute rest period in the afternoon. The daily traffic peak comes between 10.00 and 11.30 A. M.

Considering that a dozen men with typical "railroad" voices are continually carrying on conversations with local and long distance points, one would naturally expect to find this operating room a rather noisy place. Such, however, is not the case. The men are not nearly so noisy as might be expected. They learn to project their voices just as well, if not better, than female operators. The writer stood between two operators who were conversing—one with Pittsburg and the other with Washington. The words of each could be distinguished with an effort, but there was no confusing noise whatever. Neither operator used more than an ordinary low conversational tone. Many of these men advance rapidly from the telephone switchboard to positions of trust in almost all of the Railroad's departments. In the first place, they must be of unusual calibre to hold their jobs as operators. As they become more experienced

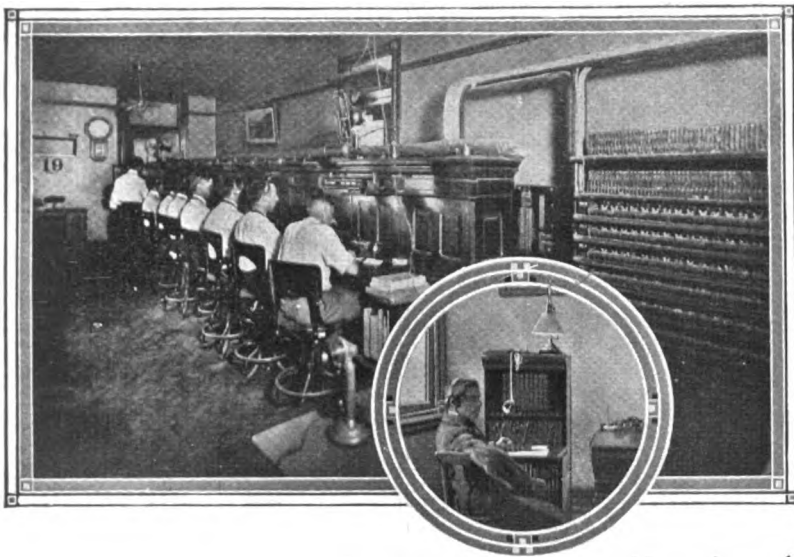
in the work they gain an almost invaluable insight into railroad affairs in general, and their value to their employers increases proportionately.

The general telephone service of the Railroad at Altoona, another important center, is handled over an eight position No. 1 relay switchboard having an equipment of 480 local lines and 45 trunk lines. The first position of this board is operated as a toll position, the second as a combination trunk answering and local position, the next 5 positions are local and the eighth the calling position. A recent peg count of traffic on this switchboard showed an average of 4,000 trunk and 9,500 local calls for one 24 hour period. This is a normal load. It has no comparison with the load during the time of unusual conditions such as accidents, serious congestions and so forth. At such times the traffic is probably 50 per cent. greater.

Calculations for distributing the load are based upon peak loads. It is held of vastly greater importance to have a sufficient number of operators on hand to handle an emergency than to work only the minimum number of operators required to handle a normal load. The abnormal condition that may occur emphasizes the value of the telephone in railroad operations, and the officials responsible for the service appreciate the importance of not handicapping themselves by restricting the operating force. The extensive use of the telephone at Altoona has been brought about largely by the efficient service rendered both by the operating and maintaining forces.

Here, as at all other points except Broad Street Station, female operators are employed. The force is supervised by a chief who follows closely the work of the operators. The best practices of commercial companies are adhered to in the operating room. Special training is afforded chief operators and subordinates by having them spend some time in the large exchanges of the Bell Company.

The maintaining force consists of a foreman, inspectors and installers. Each man is a qualified telephone man with broad experience in the line for which he is employed. The work of this force is extensive. Every branch of the plant work, from the installing of switchboard equipment to the aerial and underground cable work is taken care of by this department. In view of the fact that the



Broad Street Station Philadelphia P. B. X. Board

From a Single Position
with Nine Stations in 1894
to a No. 1 Relay Common
Battery Board with
Twelve Positions To Be
Completed About Sep-
tember, 1911 ∴ ∴

A Standard System

(Continued)

plant is not of sufficient size to warrant special men for each different class of work it will be obvious that most of these employees are combination men who are well versed in every branch of telephone construction and maintenance.

Owing to the rapidly increasing number of both trunk and local lines at this point, arrangements are now under way to provide a four-position toll and trunk switchboard to be located on the opposite side of the room from the present 'board. When the new switchboard is put into operation all trunk and toll calls will be handled over it. The present switchboard will be used as an "A" board for local calls only.

At Harrisburg, an important divisional headquarters about midway between Philadelphia and Altoona, there is another large installation. A modern four position common battery switchboard supplies service to more than a hundred direct line telephones. Twelve long distance trunks and 27 trunks to adjacent points come into this switchboard. In addition, the dispatcher's office at Harrisburg claims the most complete telephone train dispatching equipment on the Pennsylvania lines east of Pittsburgh and Erie. Photographic reproductions of these features appeared in the March 15 issue of THE TELEPHONE NEWS.

The Eastern Pennsylvania Division as a whole is splendidly equipped with general telephone service. It is handled by 13 regular exchanges distributed over the various divisions. These exchanges are all connected by trunk lines so that a complete interchange of service is possible. They vary in size from one to four positions, the majority of the exchanges being of the common battery type.

The use of telephones in handling trains was logically a later development. However, it is claimed that the Pennsylvania was the first to adopt the telephone as a means of communication for handling its train movements. The writer was fortunate in having an interesting talk with one of the men who was instrumental in adopting telephones for this purpose.

"What was your idea in introducing the telephone to dispatch trains?" was one of the questions asked.

"We did not introduce the telephone for train dispatching until we had given it a thorough try-out," was the answer. "By this we had found it more accurate, easier to operate and more adaptable to our needs than Morse telegraph."

"How about the accuracy of the telephone in transmitting orders?"

"That is a point on which many people seem to be misinformed. The telephone of itself is really more accurate than the telegraph. This is because of its greater simplicity of operation. Take a typical train order—by Morse it is transmitted into a mechanical instrument, thence over wires and is reproduced by dots and dashes on a sounding device at the terminating end. Here the sounds are interpreted by a receiving operator and placed on paper. You know without my telling you that the telephone operation is both quicker and simpler. Experience has proved that the percentage of errors is considerably less in the use of the latter instrument."

"How did the telegraph operators look on the introduction of telephone instruments?"

"Well, as might be expected they did not like the looks of the thing at first. They thought it meant the passing of the telegraph operator and felt that the railroad had no further use for them. This feeling has entirely died out. As soon as the men realized that we would need just as many employees to handle trains and men of just as high ability, they saw things in a new light, and when they found they could do their day's work more comfortably and more efficiently, they were just as radically in favor of the telephone as at first they were against it.

"As a matter of fact, the adoption of the telephone for train handling means a great deal in favor of train dispatchers and their assistants. It used to be that a man's term of usefulness in this work was limited. The work was life-shortening. Sometimes it was necessary for an operator to send or receive for hours without pause. Eventually his fingers stiffened and his sense of touch became less acute. 'Losing your grip,' it was called. It was a very prevalent feature of telegraph operating. Now it is different. Our train dispatchers work at their trade as long as they wish, or more strictly, as long as they can sit back in their arm-chairs and talk and hear with accuracy."

The equipment designed to replace the telegraph is by far the most interesting feature of the Railroad's telephone system. This

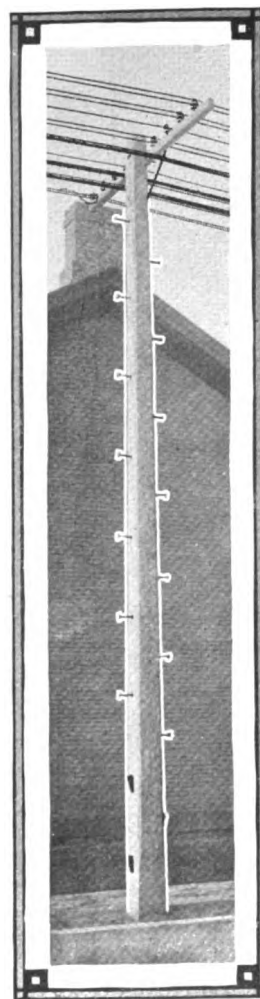
work, carried out on the large scale required on divisions of such size was necessarily pioneer in character. The designer had few sources of information. No railroad had ever attempted to use the telephone on such a broad scale as that undertaken by what is known in railroad circles as the Eastern Pennsylvania Division of the Pennsylvania Railroad. It was not only necessary to design equipment that would meet present conditions, but which would fill the requirements for at least ten years. It was also necessary that, in so far as possible, whatever equipment was finally adopted should be so arranged and simplified that the average telegraph repairman could keep the apparatus in working condition. It was necessary to design an equipment by which, although a failure might occur, various offices could provide a means of communication so long as there were any wires intact. A failure of any part of the office equipment must not shut out the office from means of communication. With this went the problem of ease of operation. It was necessary for the equipment to be as flexible as possible so that any one or more lines could be connected and that an operator could supervise on any connection desired. Lastly, the space available for such equipment was limited in many cases to a remarkable degree.

Another feature that had to be considered was that all equipment be of a uniform character, that is, that the method of operating be identical at all points so that extra operators sent from one end of a division to the other would be able to work efficiently.

Does the Pennsylvania Railroad follow up failures of service and does it take measures to prevent recurrences? It does. The answer is emphasized by the many record and report forms that must be filled out for every case of trouble. These sheets are carefully analyzed by the heads of the telephone service and the failures grouped under separate headings. This enables the responsible officials to study the cause of failures with a view to applying a remedy.

It may be surprising to learn the degree in which the telephone has replaced the telegraph on the Pennsylvania Railroad. For example, on the Middle Division of the Main Line between Altoona and Harrisburg, a distance of 132 miles, there is not a telegraph instrument working. All the business of the division is handled by telephone; this is also true of the branches of that division. The "through" business between points such as Harrisburg, Philadelphia and Pittsburg only, is handled by telegraph. And even these telegraph circuits are imposed on telephone trunk lines between the points mentioned by using simplex and composite circuits.

Those not familiar with the requirements of the Pennsylvania Railroad can hardly appreciate what it means to inaugurate a new method of wire communication in the face of an old established system like that of the telegraph. A complete substitution refers not only to train wires, but to message circuits, block circuits, report circuits, time circuits, etc. Each one



Concrete Pole Used by
P. R. R. at Various Points

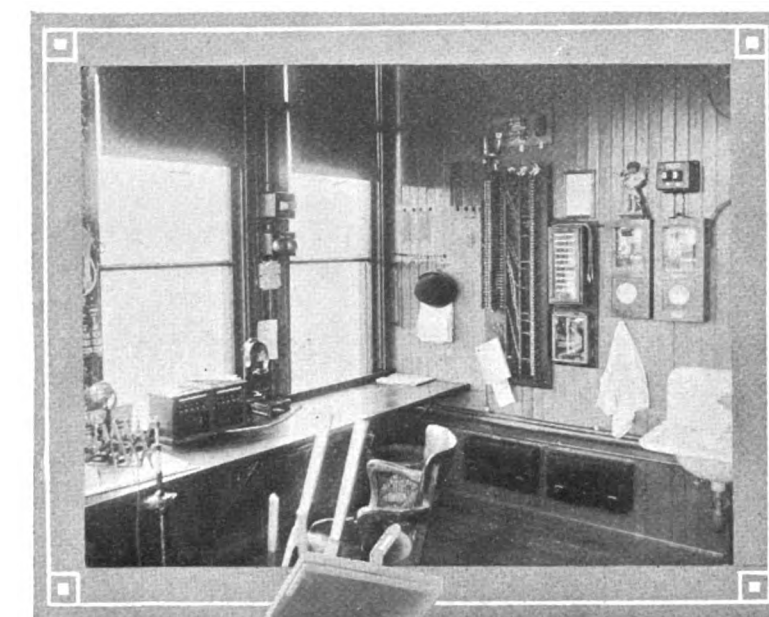
of these different circuits requires special consideration because of the great difference in the character of the work performed.

For instance, for a train wire it is necessary that the circuit be arranged to accommodate from 15 to 50 stations, each station to be called selectively from all others; that the time consumed in calling any station must not exceed five seconds; that any number or all of the stations can be listening on the line at the same time and the transmission remain at a commercial standard; that the dispatcher can call stations on the line while talking to another; that the dispatcher will know by an audible indication that the bell at the station called has rung; and, in the event of trouble on the line, that it can be "patched out" and service restored in the quickest possible time. In order to keep the line free from noise it is also necessary that the transmitter be disconnected from the line at all times except while talking—this to avoid room noises that might be picked up by the transmitter and sent over the line. As stated before, any number can listen on the line with no transmitter connected except the one talking. This latter requirement is effectively met by the use of a foot switch which controls the battery circuit to the transmitter. This foot switch is also arranged to connect the secondary of the induction coil in the circuit when operated. Normally, while listening, only the receiver which has a resistance of 610 ohms is connected to the line. It is to be understood, of course, that the same receiver is used on all lines connected with a tower and that when it is desirable to listen on the train wire the receiver is connected to that particular line.

A train wire may be from 25 to 250 miles in length. The longest train wire on the Eastern Pennsylvania Division is 132 miles and has 15 stations. The nearest station on this line is about 100 miles from the dispatcher. Main Line divisions are divided up in from 4 to 6 dispatchers' sections.

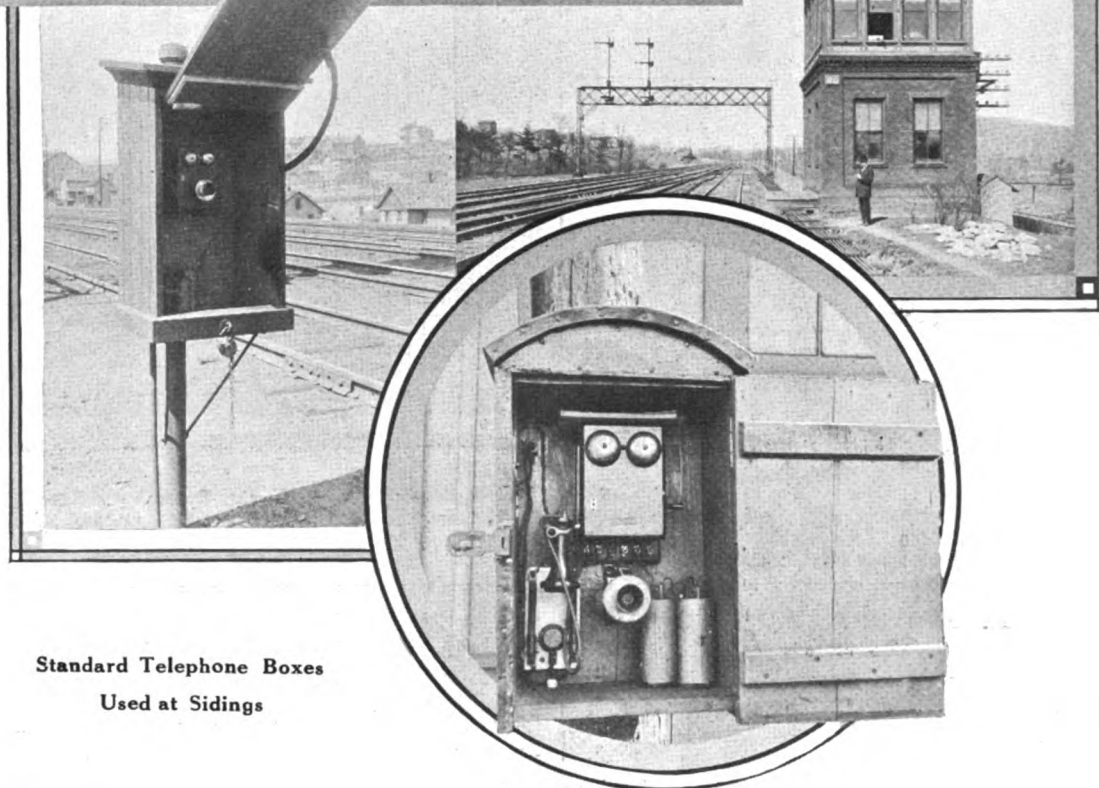
The block circuits terminate at each tower on ring-down, mechanically restored signals. The ordinary method of signaling on magneto lines at outlying points could not be used owing to the great amount of signaling done. The hand generators commonly used are not adapted to this service on account of the time consumed in operating as well as the rough usage a device of this sort would receive. The requirements for a ready and easily operated means of magneto signaling brought out the first interrupter put to practical use for ringing on magneto lines from a few cells of dry battery. The interrupter first used operated on 6 cells of No. 6 dry batteries and was capable of ringing six 2,500 ohm ringers. This was necessary because of the short party lines connected with a large number of towers. The interrupter is operated by a push key conveniently mounted. The interrupter is in operation only while the key is pressed. The distinct feature of this device is that battery is consumed only while the key is operated.

To give some idea of the extent to which the telephone is used it may be interesting to narrate the functions of a telephone in a manual block tower for every train that passes or enters the block on either side. Suppose, with block stations A, B and C, that a train is approaching A. A must call B and ask if the block is clear. When the train passes A, A must call B and give B the time the train passed A, the number of the train and the number of the track. Before the train reaches B, B must call C and ask if the block is clear. When the train passes B,



Typical Arrangement of Standard Telephone Equipment in Towers

Exterior of Tower. East of Bellwood, Pa., Station on the Middle Division.



Standard Telephone Boxes Used at Sidings

he must call A and C and give them the time the train passed B, the number of the train and the number of the track, etc. Each call of this character requires the ringing down of a drop. The reporting of the train to the dispatcher does not require ringing as the dispatcher is "on the line" with his receiver to his ear at all times. Thus it is only necessary to cut in on the line, and if it is not already in use, proceed to report the train.

With an average daily movement of 200 trains, a conservative figure, it will be seen that each tower must ring 600 times. This is only for blocking purposes and does not take into consideration the numerous other lines upon which it is required to ring.

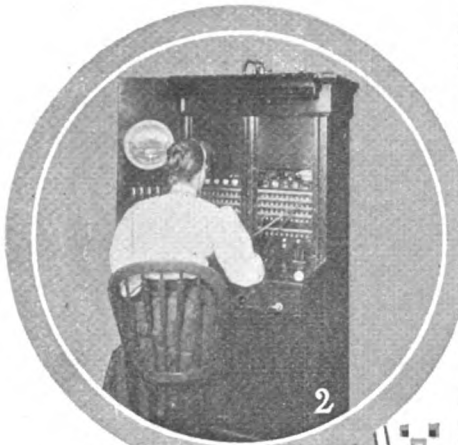
It will be obvious from the preceding that the use of hand generators would be out of the question. The interrupters first designed for this purpose were not of sufficient power, but the manufacturers have lately developed interrupters which meet every need.

Considering the figures quoted it will be seen that the telephone is used seven times for each train per tower per day for train movements alone.

A report circuit is different from either train or block circuits. A report circuit is used for car reports and in the case of the Middle Divi-

sion a circuit extending over the entire division of 132 miles is required. There are 10 stations on this circuit and any one can call selectively any other station. This practically means that every station is of the intercommunicating type. Considerable difficulty is encountered on a circuit of this length as it is necessary that a grounded selective system be used, and the leakage is so great in rainy weather that with the system now in use it becomes almost inoperative. Considerable attention is now being given to developing a circuit that will be operative under all conditions of weather regardless of the length of the line. The experiments recently conducted with a new circuit have proved very satisfactory and the company believes that its trouble with these report circuits will soon be reduced to a point where they will be considered entirely satisfactory.

Another point that had to be considered was the giving of time signals. With the telegraph this was comparatively simple as the time taps could easily be "ticked off" on the telegraph instruments. But to produce audible signals with the telephone was a different matter. With selectors bridged across the circuit the problem was still more difficult. The arrangement had to be automatic so far as the out-



2



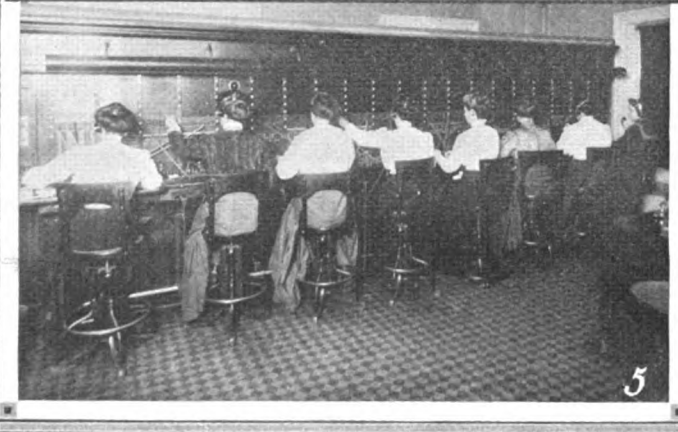
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6

2. Switchboard and Test Equipment, Tyrone, Pa.
4. Switchboard, Huntingdon, Pa.

1. Interior View of A. D. Tower, Petersburg Branch, Middle Division, Showing Small Switching Cabinet and Test Panel.

5. P. B. X. Board at Altoona, Pa.

3. Switchboard, Bellwood, Pa.

6. Switchboard, Hollidaysburg, Pa.

A Standard System

(Continued)

lying points were concerned, and in order to get an audible signal it was seen that a bell of some sort had to be used. This bell always had to be in circuit and yet not respond when the selector impulses were sent over the line. The method now in use has a low resistance, polarized bell, connected as part of the excess resistance in the individual selectors. By using a pole changer at the main station the battery to the line is reversed and the bells tapped. The pole changer is operated by the contacts of a Morse relay inserted in the telegraph circuit over which the time signals are received, the armature on the bells returning as soon as the pole changer restores to normal position. These signals are sent out at the rate of one per second, with regular intervals of no impulses for 10 seconds, continuing for 5 minutes. The greatest difficulty to overcome with this arrangement is to keep the selectors from "stepping up" when the taps are sent over the line, and careful adjustment is required of the pole changer so that the circuit is closed the least possible time and not long enough to allow the selector mechanism to operate. It was also necessary to arrange repeating stations at all junction points in order to give the time to branch divisions. Time is sent twice daily at 2 A. M. and 2 P. M. It is received at Altoona over a telegraph wire from the observatory at Allegheny.

A very elaborate and complete testing equipment is located at the headquarters of each division, and this used in conjunction with test

panels located in the towers and small exchanges make it possible to locate troubles promptly, and set up patches in the shortest possible time.

One use to which the telephone has been applied is the unique installation at Altoona known as the calling system. With this system each trainman, formerly called by men known as "runners," has a telephone placed in his residence or lodging house and when wanted to go on his run is called by telephone and given the order to report for duty. This is of considerable benefit, both to trainmen and to the Railroad. Under the runner system the caller did not know whether each crew would be filled by the regular men or whether it would be necessary to call extra men, until after receiving a report from the runner. This, in many cases, caused serious delay to the dispatching of trains, and increased the labor expense by reason of having to wait for a particular member of the crew. (Crews are usually paid by the hour when delays occur.) With the telephone system, however, ten or twelve crews can be called in a few minutes, and the caller knows at once whether each crew will be filled by the regular men, or whether it will be filled out by one or more extra men. A check recently made upon the caller showed that six crews, thirty men, were called in eleven minutes.

The method of handling the calls is as follows: The chief caller, located a considerable distance from the exchange, calls the operator at the calling position and gives her a list of telephone numbers. The operator proceeds to

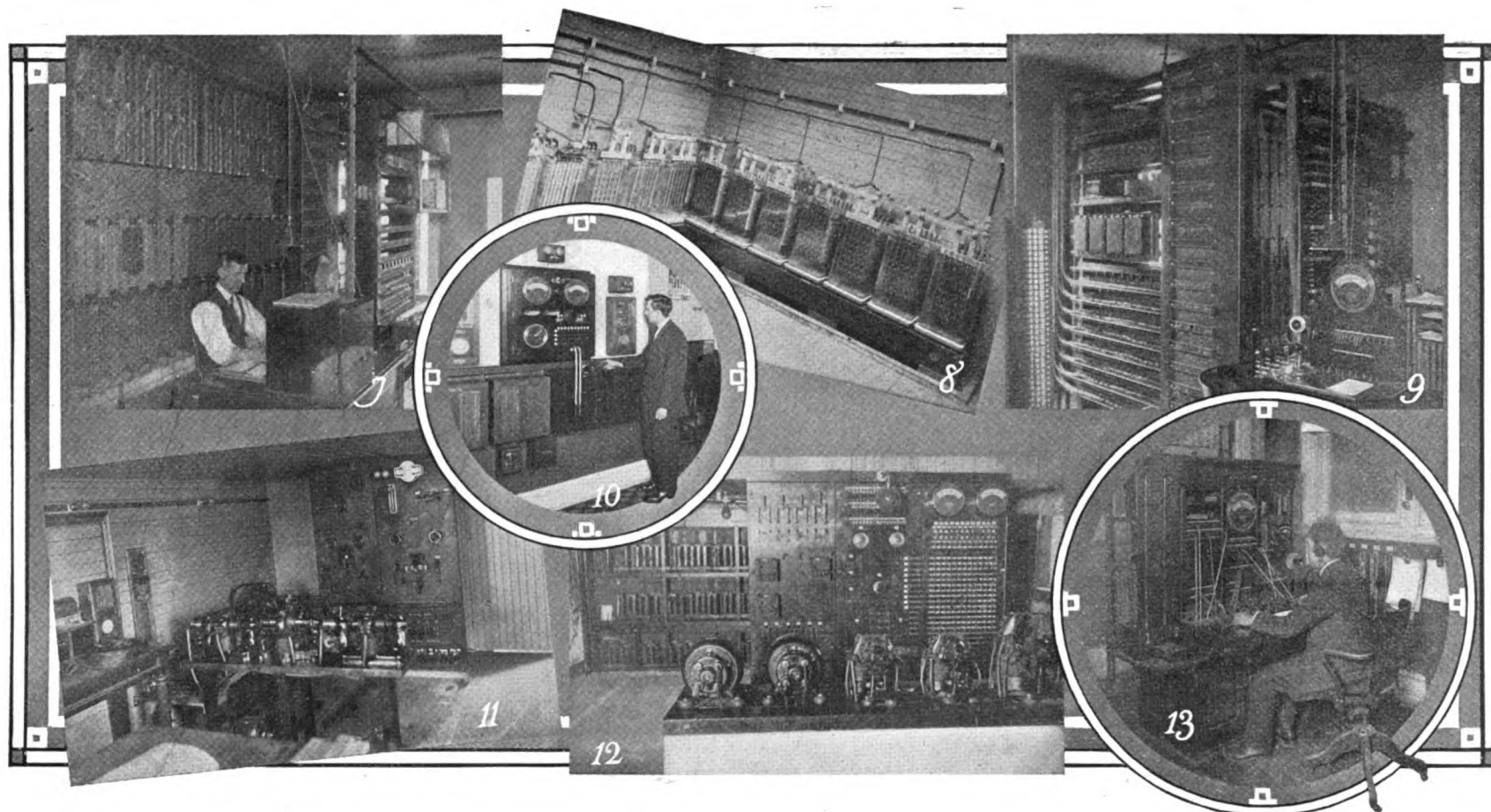
call the men and as fast as they answer they are connected with the chief caller, who issues the necessary orders.

The telephones in the rooms and residences of the trainmen are restricted to messages concerning the Company's business. They may also be used in cases of sickness. In this way the lines are kept clear at all times for railroad calling purposes.

This method of calling trainmen has been in operation for several years. During that time the results have been carefully studied and the system extended until to-day the entire city is covered. The results are so satisfactory to both parties, the Railroad Company and the trainmen, that neither would care to have the old system of calling restored. It may not be as economical as the runner system when considered from the initial standpoint of dollars and cents, but it undoubtedly possesses advantages which cannot be computed on a monetary basis.

Union Depot—
the Washington, D. C., Terminus of Nine
Railroad Companies





7. Terminal Room, Motive Power Dept., Central Office, Altoona, Pa., Showing What is Probably the Largest Wall Type Distributing Frame in Use. Terminating Capacity, 1600 Lines, Protection for 1280 Lines.

11 Ringing and Charging Machines, Motive Power Dept., Central Office, Altoona, Pa.

8. Part of Duplicate Battery Plant, M. P. Dept., Central Office, Altoona, Pa.

10. Testing Equipment, Tyrone, Pa.

12. Battery Plant, F. A. Office, Altoona, Pa. Headquarters of the Middle Division. This Plant Furnishes Battery for Selector Circuits and Duplex Telegraph Equipment.

9. Another View of Compact Arrangement of Equipment in M. P. Dept., Central Office, Altoona, Pa.

13. Test Board, F. A. Office. Middle Division, Altoona, Pa.

In case of a wreck occurring on the road it is always necessary to send out the wrecking crew at the earliest possible moment. The Superintendent's office must be kept fully informed in regard to the conditions existing at the wreck. The construction of special telephone lines to the residences of men assigned to wrecking service has enabled the Assistant Freight Train Master to assemble the required force and start the train in a fraction of the time formerly required.

The placing of telephones in the residences of officials and of the heads of various departments of the road has had a distinct advantage. By this plan they are on duty practically twenty-four hours of the day. They can be reached from any point within a remarkably short time. All necessary information can be given and orders transmitted much the same as though the business were transacted within a private office.

These several uses of the telephone indicate

a natural conclusion; that this railroad has made wonderful advances towards an adequate telephone system. The Pennsylvania system, from a telephonic viewpoint, is well operated. By this is meant, of course, that true economy is practiced. For instance, it now costs the railroad more to operate and maintain its train dispatching system than formerly. In many cases it requires higher priced men to install, adjust and maintain telephonic equipment than it did to keep the Morse plant in good repair. In every detail the present equipment is more delicate and more destructible. The increase in efficiency, however, is considerable, and the decrease in percentage of errors is valuable. All said, it is undoubtedly real economy for any railroad to make extensive use of telephones.

Few figures have been compiled as yet to compare the efficiency of telephone with telegraph train handling, but one of the Pennsylvania's connecting systems has made a noteworthy effort in this direction. One illustration in the tabulated result is especially interesting. A test was made on a circuit of 150 miles long. Freight traffic alone was considered. In one month it was found that in this district 559 hours and 29 minutes were saved by the use of the telephone. This is equal to an average of 1 hour and 16 minutes saved in the handling of each freight train. Reduced to a money value, corresponding to the pay of train crews, fuel consumption and so forth, this economy represents a saving of more than \$1,000 a month to that railroad. The invest-

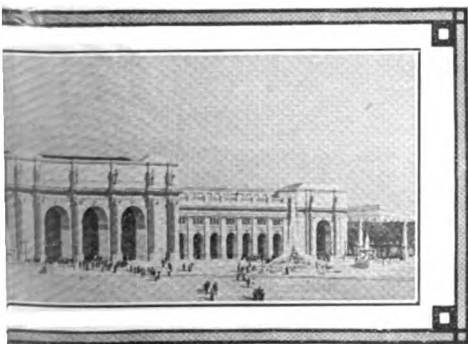
ment was about \$15,000. As a climax to these startling figures, it is stated that the traffic density on this stretch of track was increased 11 per cent. under telephone operation. The figures are probably typical not only of this railroad, but of all systems on which telephones have superseded Morse telegraph instruments. It is small wonder that train dispatchers and division operators become enthusiastic about the newly adopted medium. The day is close at hand when the superintendent of telegraph will find his title a misnomer; it will have to be changed to "telephone superintendent."

The one outstanding fact among all the others is this. The officials of the Pennsylvania Railroad saw that the telephone was peculiarly adapted to railroad operations. It lent itself to skilled as well as unskilled labor, and was as valuable to messengers as to superintendents. They adopted it. It proved a complete success. The result—to-day the responsible officials are unanimous in the opinion that no known system or means of communication could handle the Railroad's business so satisfactorily.

Boston—Washington Underground

The heavy storm of June 12 has been the cause, according to press notices, of renewed efforts to rush the completion of the underground cable which is to link Philadelphia in this way with New York (already finished), Boston, Baltimore and Washington.

This Building, Completed in 1907, Contains Unusually Elaborate Telephone Equipment



Telephones in the Mexican War

THE Japanese in their advance toward Mukden used field telephones with brilliant effectiveness. An equipment, consisting of the necessary instruments and big reels of wire something like hose carts, is now carried in the American army, so that there can always be direct communication in the field, says *Collier's Weekly* of June 10. Obviously, in modern battles where the range of the fire is so great and the commanding officer plans the battle as he would play chess, this idea is of enormous aid. In Mexico a unique feature has been added to the rôle of this instrument in that the opposing generals were connected by telephone. They were furnished with service through an exchange of five thousand subscribers during the course of the battle at Juarez, Madero and Navarro signing contracts at the regular rental rate and being listed on the records as regular subscribers. They directed many of the maneuvers by telephone, by recourse to "information," to furnish them the numbers at the various Juarez addresses. The officers were able to submit their reports by telephone

Organization Changes

J. I. Kinney, Conduit Inspector, has been transferred from the A. T. & T. Company to this Company.

J. K. Powell, Central Office Wireman, has been appointed Shop Foreman in Philadelphia.

J. W. Bowers has been appointed Chief Draughtsman in the Plant Department, New Jersey.

F. Reichert, Foreman, has been made Gang Foreman, Plant Department, Philadelphia.

C. E. McKinney, Switchboard Inspector, has been transferred from the Plant Department, Philadelphia, to Harrisburg.

Pittsburg Division

T. F. Smith, clerk in the Division Manager's office, has been appointed Ledgerman in the office of the Division Auditor of Receipts, Pittsburg.

D. McVey and J. Baumesiter, linemen, have been made Foremen in the Plant Department, Pittsburg.

P. E. Corbett, formerly Specification Writer in the Engineering Division, is now Field Engineer in the Plant Supervisor's office.

R. Y. Miller, Repairman, has been appointed Wire Chief at Rochester, Pa.

A. T. & T. Company

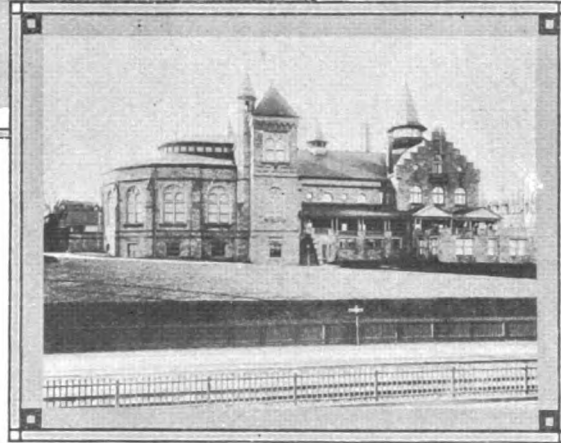
B. C. Jutten has been appointed District Plant Chief, Philadelphia, vice S. C. Ingalls, who will have charge of Plant Accounting in the Division Office.



(Above)

Hotel and P. R. R.
Y. M. C. A. Quarters
at Enola, Pa.,
Built by the
Railroad Company

(Below)
P. R. R. Y. M. C. A.
Main Building of the
Main Branch, 41st and
Westminster Ave.,
Philadelphia,
As Seen from the Tracks



during the course of this battle by the simple means of breaking down a door or battering in a window. It was toward the close of the battle that General Madero called up his antagonist and demanded the surrender of the town. Again, when Navarro's life was threatened by the excited Revolutionists, Madero used the telephone to give strict orders to protect the opposing general. It was through the telephone, also, that a temporary armistice to take care of the dead and wounded was arranged. The telephone company records show that Madero used the instrument one hundred and sixteen times, to seventy-four for Navarro. The instruments in Juarez were handled for the combatants in the same manner as a private wire, but *Collier's* has no knowledge about what happened when the operator reported "Busy," or "They don't answer."

Washington Division

R. G. HUNT, Division Correspondent

A most satisfactory offset to the usual June losses by disconnection in the Washington Division was the application of the Raleigh Hotel for 250 stations.

Contracts for private branch exchanges have been closed with the Lenman Apartment House, for two trunks and 20 stations and The Calvert, for two trunks and 16 stations.

The Washington *Herald* recently said editorially "Now comes another story from New York regarding a member of the Fire Department who was charged with reporting late for duty. He gave his excuse, and when asked why he had not telephoned to his engine house, replied in all sincerity that he had never used a telephone in his life, and did not know how to manipulate it. Here is an instance of absolute ignorance. It seems hard to believe that there is any one in a large city to whom the telephone remains a mystery. There are, of course, sections in the back woods where such things might be, but in the face of our vaunted high average of intelligence, this instance comes as a shock. A few schools for the dissemination of knowledge among men would not be amiss."

Additional questions that have been put to local "Information" operators include the following:

Will you give me the coal dealer in southeast Washington where Belt & O'Brien buy their coal?

Where do you get marriage licenses, and is the office open?

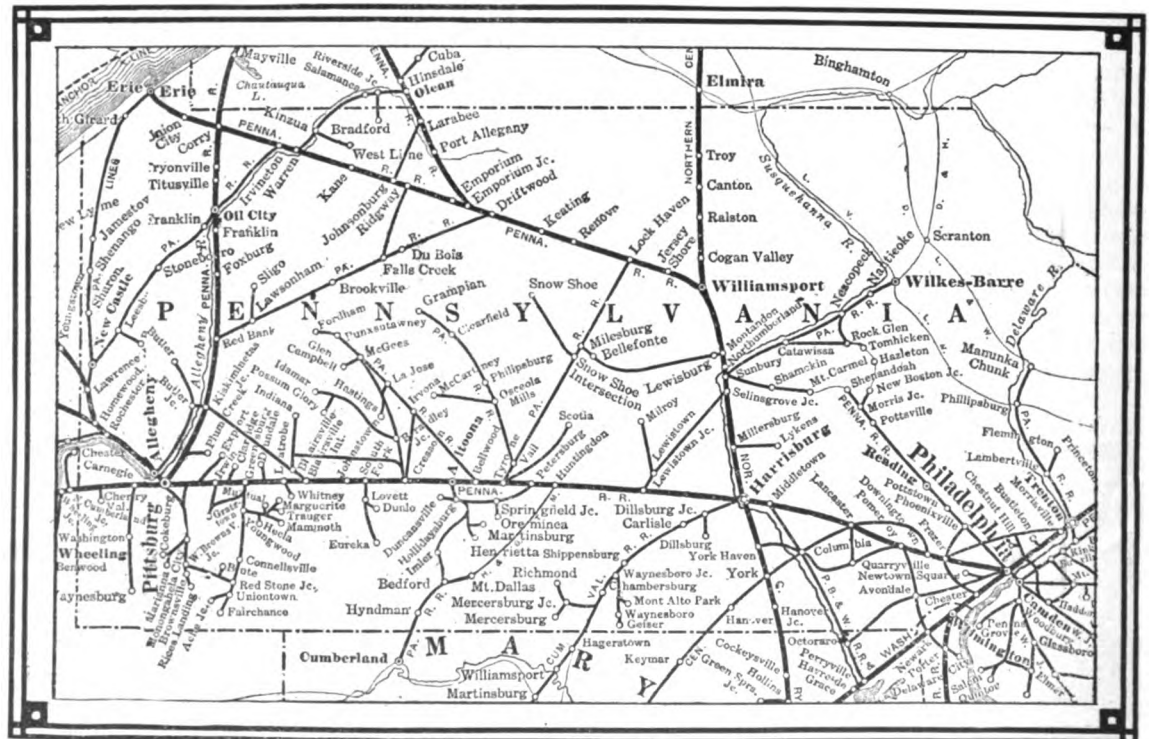
How do you write 94 in Roman numerals?

In what part of the National Museum are located the animals that Roosevelt captured?

Can you tell me the telephone number of a Mr. Smith in Takoma, who has two children, Dorothy and Katherine?

Mr. Emery is employed by the Government. Can you tell me by what department?

What is the last year in which we had a blizzard? Is Carrie Nation dead?



P. R. R. Main Line and Branch Divisions in Pennsylvania—Operated Mainly by Telephone

Pittsburg Division**L. W. GRISWOLD, Division Correspondent**

Parties wishing Telephonic connections or Printing instruments, are invited to call at office, where full particulars may be obtained. Connections made in either city or surrounding country, within fifty miles. Public respectfully invited to call, test and compare with other instruments in use.
THE BELL TELEPHONE AND PRINTING TELEGRAPH COMPANY OF PITTSBURG.

This advertisement appeared in the issue of The Pittsburg Dispatch dated September 1, 1879. At that time the Bell license to sell telephones in Allegheny county was held by a number of prominent men who afterwards became identified with The Central District Company. However, at this date the company was controlled by The Western Union Telegraph Company and sold the Edison instruments. Later The Bell Telephone and Printing Telegraph Company of Pittsburg was consolidated with the Central District Company and Bell service has been dispensed exclusively by the latter Company since the union.

Telephone service has been provided for patrons of the Pennsylvania Railroad restaurants in the Union station. Side tables in the dining room have been fitted with public Bell stations. The statement "Telephone Service, Side Tables, Dining Room" appears on all menu cards and gives our Company indirect publicity by no means invaluable.

The Employees' Beneficial Association held its annual outing on June 24. The steamer Sunshine was chartered, and the members and guests danced on the main deck. Nirella's orchestra accompanied the party, and luncheon was served. J. K. Martin was chairman of the Entertainment Committee, and those who were associated with him were Miss M. Steele, Miss C. Campbell, J. A. Connell, C. E. Malley, E. J. McKee, J. H. Clunan and C. M. Klingensmith. J. H. Boeggeman was chairman of the Reception Committee.

Butler District. Applications have been obtained for private branch exchange systems in the new St. James Hotel at Bradford, Pa., and the Struthers Hotel at Warren, Pa. This is the first service of the kind to be installed in these cities.

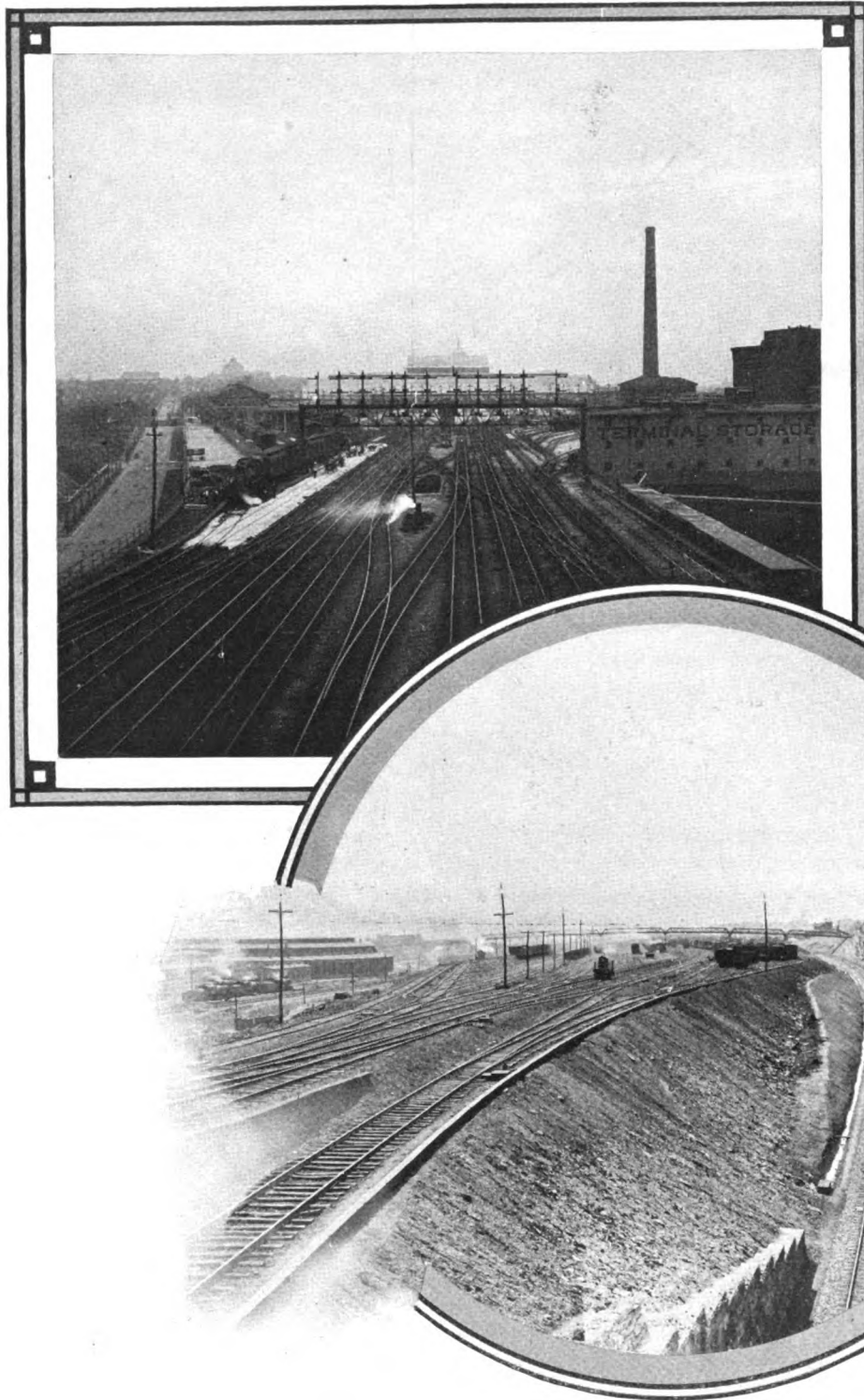
The Leatherwood Telephone Company which operates in and around Clarion, Pa., is one of the largest connecting companies in the Butler District. Just now extensive improvements are being made to its plant at a cost of several thousand dollars. Standard lead covered cable is being strung and new fuse racks installed.

Greensburg District. A plan "A" Rural Line agreement has been closed with the Blue Knob Telephone Company, with headquarters at Blue Knob, Blair County, Pa. This opens a section of country formerly without service. The line will connect with the Company's central office at Portage, Pa.

The Fayette Rural Telephone Company, a plan "A," connected with our Scottdale central office, has completed its work and the subscribers are now receiving service.

The lines of the Yukon-Waltz Telephone Company are being rebuilt. Twenty foot cedar poles are being used. This Company will be served from our central office at Youngwood, and has already signed 15 subscribers.

Between the hours of two and three in the morning, one of our Ebensburg, Pa., operators heard a peculiar noise across the street. Upon



Washington, D. C.,
 Upper-Quadrant
 Signals, Governing
 Movements of Trains
 into Union Depot.
 Capitol in Distance.
 (An Exceptionally
 Busy Trackage
 During Congressional
 and Inaugural
 Seasons.)

West View of East Yard from Tower, Altoona, Pa. The Gravity System is Employed in Shifting Cars and Making Up Trains. Note that Five Levels of Track are Here Shown. Main Passenger Tracks are on the Right. Fifty-two Stall Engine House on Left. There are 200 Miles of Track in This Yard.

investigation, she saw two men trying to force an entrance into a store. The police were notified by telephone, but as an officer approached the store, the would-be robbers became alarmed and fled.

The Indiana Local Manager has obtained an order from the Two Lick Farmers' Telephone Company for Western Electric telephones to be placed on its new lines.

New Castle District. The eight year old daughter of a well-known New Castle business man entertained a friend of about the same age the other day. During the course of the afternoon the mother of the little hostess was called out. While the mother was absent the children decided to make candy. They proceeded to get the utensils ready but at the last moment did not know how to make the candy. So the little hostess went to the telephone, called "Information," and politely

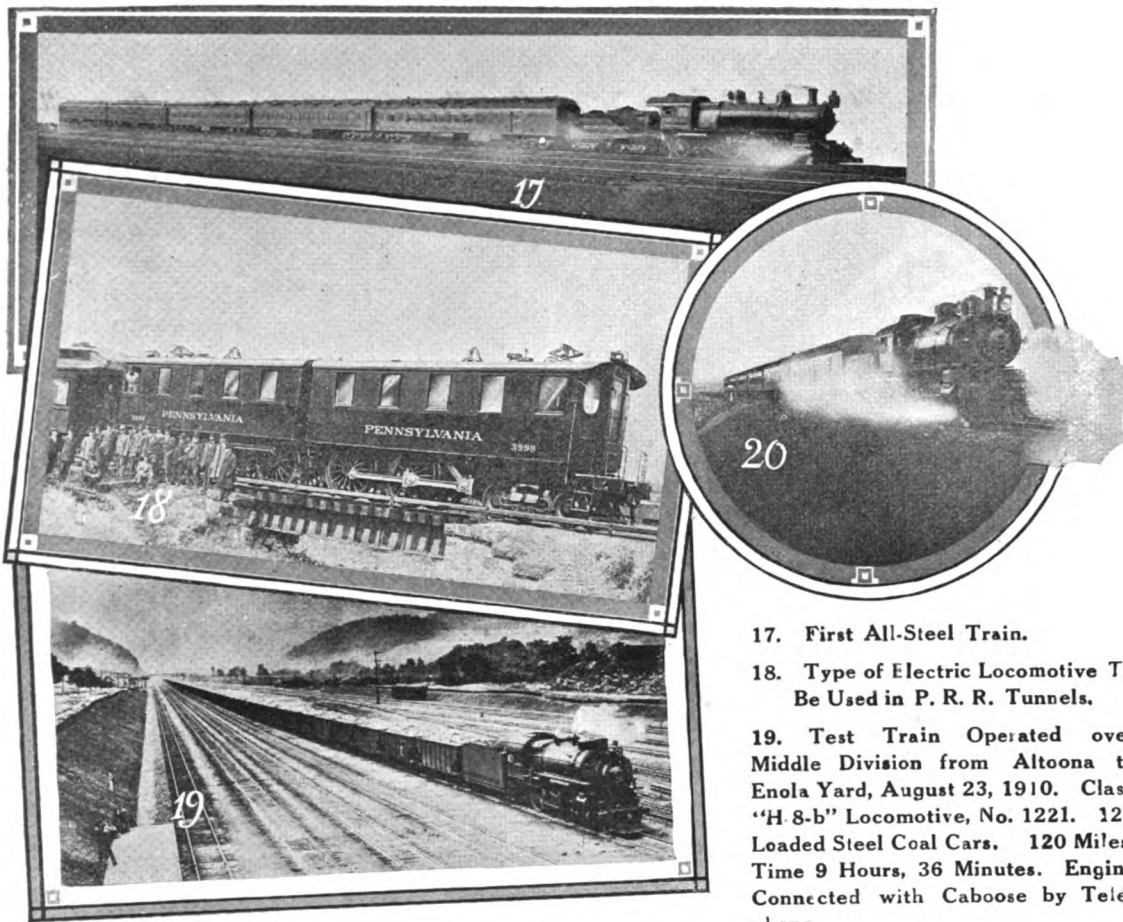
inquired the recipe for making "sea-foam."

HARPER.

Uniontown District. A rural line connecting with Farmington, W. Va., has been in trouble for four weeks. Early morning and evening are busy times with the farmers and it was exasperating that the trouble should come at those periods of the day. Whatever it was that spoiled the transmission acted very much like a spook. This is how one of the subscribers tells about the running down of the trouble.

"We went over the line several times but couldn't find the mischief maker. It just happened that my companion found it. He glanced at a pole and saw something black stretched across the wires. It was a big snake. He had been dead so long that he was thoroughly dried, but I guess the dew at morning and evening got on his hide and short-circuited our line. At any rate the trouble stopped when we pulled him off the wire."

CAHOON.



20. 18 Hour New York-Chicago Special Running at Full Speed near Morrisville, N. J.

17. First All-Steel Train.

18. Type of Electric Locomotive To Be Used in P. R. R. Tunnels.

19. Test Train Operated over Middle Division from Altoona to Enola Yard, August 23, 1910. Class "H 8-b" Locomotive, No. 1221. 120 Loaded Steel Coal Cars. 120 Miles, Time 9 Hours, 36 Minutes. Engine Connected with Caboose by Telephone.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. Forty-five hundred feet of 600 pair cable is being distributed in Allentown to improve outside plant conditions. The Allentown newspapers, through their editorials and news items, have given our Company favorable comment during the past week upon the progressive policy adopted in placing wires underground.

During the month of May Hess Brothers' Department Store, Allentown, Pa., had 1,241 calls over the leased line installed between their store and our Bethlehem, Pa., central office. This shows an increase of 176 calls over the month of April. About 75 per cent. of these calls resulted in orders.

Reading District. The Shenandoah *Evening Herald* of June 9 contained a lengthy description of the Company's cut over from magneto to common battery service.

Under date of June 13 the same paper printed an amusing account of three instances in which local persons were momentarily dismayed at their inability to "ring up." The common battery instruments being without cranks, subscribers were unable to "ring up" as they had been accustomed to do and, according to the story, it was some time before patrons became accustomed to the new convenience. Some of them blamed their children for having removed the cranks.

Scranton District. One of the prominent and oldest residents of the city of Scranton recently wrote the Commercial Department stating that Bell telephone service was one of the best assets in his business, and he did not know how he could do business without it.

A Carbondale subscriber informed our Com-

mercial representative recently that during a severe storm her residence was struck by lightning. The telephone was located near the chimney and the lightning followed the telephone wires out of the building into the ground, thus saving her residence.

An opposition subscriber who is a large property owner and a prominent local business man has been interviewed a number of times within the past three years in reference to becoming a subscriber to our system. Each time he advised our representative that he was satisfied with the opposition service and did not need this Company's service. During the past week our representative again called on him, and after a short interview he decided that he would sign applications to cover the installation of Bell service at three different locations. The applications were obtained and service established immediately.

On Wednesday, June 7, at 1.15 P. M., the Plant Department made the cut over changing our service from magneto to common battery service at Honesdale, Pa.

Wilkes-Barre District. One of Wilkes-Barre's leading department stores recently took occasion to try out a "telephone special" advertisement. The first "ad." resulted in the sale of over six dozen pairs of women's hose in one day. The firm was so well pleased with the result that it is now printing telephone specials each day. Results continue to be very gratifying.

The summer exchange at Glen Summit has been reopened for the season. This resort is visited yearly by a large number of Wilkes-Barre and other people from nearby. It is interesting to note that with but one or two exceptions every cottage is equipped with Bell telephone service.

The following letter was received by the Chief Operator at the Hazleton as a token of appreciation from a family who recently moved to Wilkes-Barre. Accompanying this letter there was enclosed a check for \$5:

To the operators who served No. 183:—

In appreciation of your excellent and untiring service, Mrs. W. G. Thomas would like to express herself in this slight remembrance. As a family we all feel very grateful for your prompt and polite attention and regret that our associations must be severed.

We wish you all kinds of success in your every walk of life, and again thank you for your attention and patience.

A rural line of 26 stations and two circuits, called The West Packer Township Telephone Company, was connected with the Weatherly central office June 8. This rural line opens a very rich farming district which heretofore has had no service. With the addition of this line our Company has 125 stations and the opposition company 9 stations served from Weatherly.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic District. The 44th annual convention of the Master Carbuilders Association was held on Young's Million Dollar Pier, June 14 to 21, inclusive. This is the sixth time it has convened in Atlantic City. The convention of this association, together with the Railway Supply Manufacturers Association, bring together about 8,000 delegates from all parts of the United States. There were 350 exhibits of all kinds and sizes on the pier, from a complete freight car exhibited by the Master Carbuilders to one tiny steel nut exhibited by the Railway Supply Manufacturing Association.

The telephone service is being handled by a private branch exchange and 122 stations connected by 10 trunks to the local exchange.

"The Bell Telephone Co.—

Kindly have telephone put in the house I am writing from, No. 837 4th St., Ocean City. Do so as soon as possible for I made a mistake and had the other company's telephone put in."

This is the text of a short but inspiring instruction recently received at this office.

AVIS.

Bridgeton Sub-District. The Company had always been unable to place telephone service on a large farm located about four miles outside of Bridgeton until a son of the tenant signed an application. Four years afterwards the son moved South and told us to disconnect the service, stating that his father said he had absolutely no use for the telephone. After much argument we have obtained a superseding contract signed by the father.

On June 17 the Bridgeton District Commercial Office and the Plant Office moved from two rooms located in the rear of the second floor of the Pioneer Building, Bridgeton, N. J., to a room on the ground floor, 20 feet wide and 60 feet long, with a large plate glass front window 13 feet wide by 10 feet high. Twelve feet back from the front is one of the latest style oak cabinet counters. Two compartment booths for public telephones are being installed in front of the counter for the public. This office is already very much appreciated by patrons, and the Company is receiving much publicity. It is considered the finest office in the Bridgeton District.

LORE.

Dover District. Gen. T. C. duPont, the multi-millionaire of Wilmington, Del., who is to build a boulevard over one hundred miles long through

Delaware and donate it to the state free of cost, has assumed personal charge of this great undertaking. His private yacht, "Tech," is anchored at Seaford, Del., on the Nanticoke River, and is his headquarters at the present time. An automobile of special design has been constructed to be used as an office for the engineers and assistants. It is equipped with sleeping quarters. During the construction of this highway, which is to be the finest that money and brains can evolve, this auto-office will be a familiar sight along the route. Telephone service had been installed aboard the yacht, and Gen. duPont keeps in touch with his various corps of surveyors who are making preliminary surveys in order to decide which is the best route. He receives daily reports from the engineers in charge of this part of the work. High power rockets are used also to get lines on different points of the proposed routes. It is said that the completion of this road will mean as much to Delaware at this time as the completion of the steam road in the fifties.

PRINCE.

Doylestown District. An application has been secured by Salesman Callanan from Wm. H. Grundy & Company, Bristol, Pa., for a tie line connecting the switchboard in their office at 108 S. Front St., Philadelphia. It is expected that it will be completed in a few days.

HENNESSY.

Norristown District. Negotiations have been completed with a new rural club, which will be known as the Skippack Rural Telephone Company, to be connected with the Lansdale exchange. The representatives have already obtained 13 applications.

The Eastern Pennsylvania State Institution for Feeble Minded and Epileptic has recently subscribed for additional stations and trunk line. When completed, 27 departments will be able to intercommunicate through the private branch exchange, which is connected with the Royersford central office.

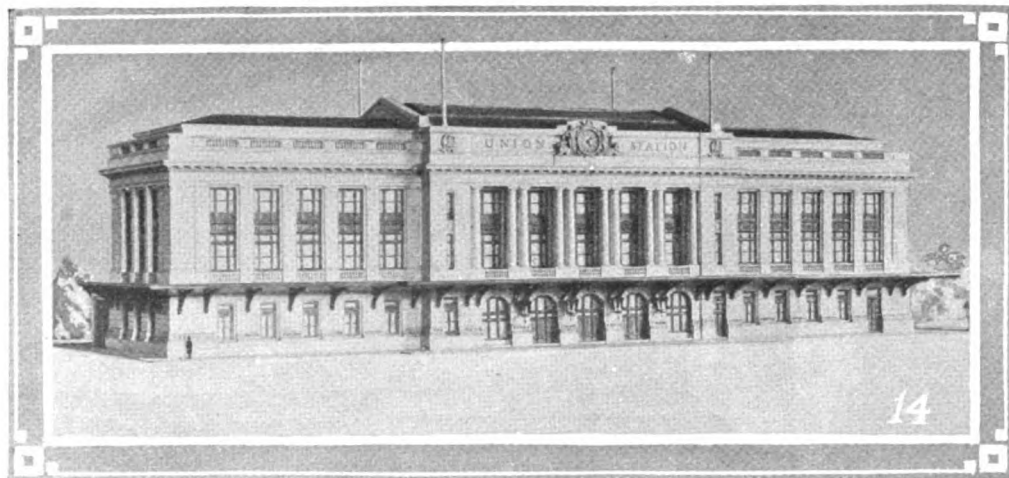
BEERER.

Trenton District. A farmer on the Rocky Hill Road ran out of his house to a gang of American Telephone and Telegraph Company men and asked the foreman if he could get a doctor in a hurry, as his son had dropped a loaded gun which had been discharged and the shot had entered the man's body. The foreman tapped a line and got in communication with the long distance Wire Chief at Trenton, who in turn telephoned to the Princeton Wire Chief. A doctor was located with an automobile. In order to show the doctor the location of the farm the Princeton Wire Chief accompanied him, arriving at the scene of the accident 50 minutes after it happened. The doctor took the injured man to a hospital, saying that if the man had not received such comparatively prompt attention he probably would have died, and that the telephone employees are to be complimented upon their promptness. An application for telephone service has been signed for the farm where the accident happened.

GARWOOD.

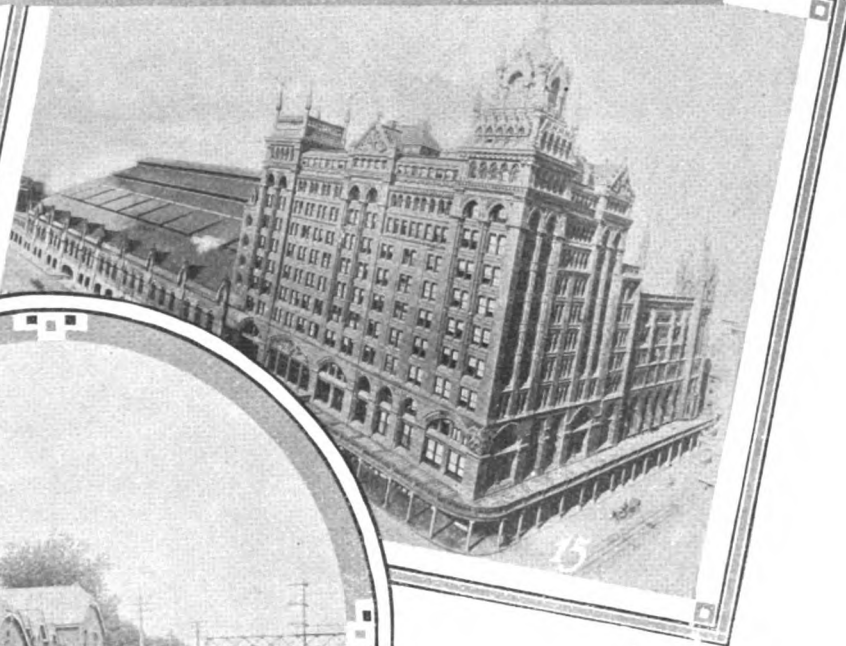
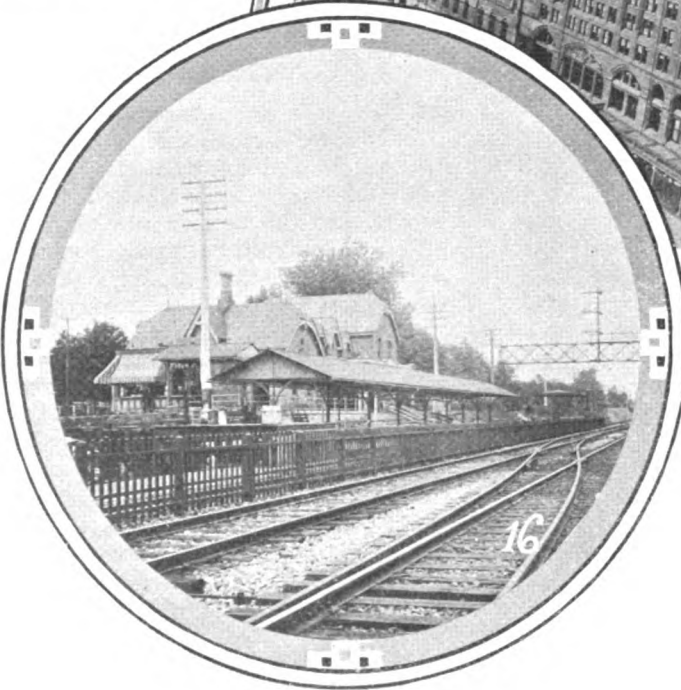
West Chester District. During the week ending June 17 The West Chester District was visited by a series of heavy electrical storms that interrupted the continuous service of several thousand telephones. The storms followed each other every day from Sunday night until Friday and each did its share by blowing over many trees on the lines. Besides their regular force the Plant Department was on the job with seven extra men borrowed from Norristown and Chester Districts. The summary for the week's work totals about 775 lines, 2,075 stations and 70 trunks.

GREENFIELD.



14. Union Depot at Baltimore, Md., now Nearing Completion.

16. Depot at Bryn Mawr, Pa.—One of the Most Fashionable Suburbs of Philadelphia: Ten Miles out along the Pennsylvania Main Line.



15. Broad Street Station Philadelphia. Executive Offices of the P. R. R. are Here. With the Annex this Building Houses Nearly 2700 Employees. The Train Shed has a 300-ft. Span; is 590 ft. Long and 100 ft. High. It Contains Over Two Miles of Tracks.

Baltimore Division

J. R. MOFFETT, Division Correspondent

The National Building Supply Company of Baltimore has issued an attractive booklet promulgating the "free toll service" idea among its out of town customers. The text of the booklet is written in light, conversational style and is modelled after a typical telephone conversation. A reproduction representing the sales manager and an addressed post card requesting a coupon book are inclosed.

At the regular Wednesday meeting of the Advertising Club of Baltimore, two prominent speakers paid tribute to Bell service.

Edwin L. Quarles, Publicity Director of the Greater Baltimore Committee, in introducing the principal speaker, G. Grosvenor Dawe, Managing Director of the Southern Commercial Congress said: "Thanks to the Bell Telephone I am able to report that I have delivered, according to my promise, my good friend G. Grosvenor Dawe."

During his intensely interesting speech, in which he told of the work of the Southern Commercial Congress, Mr. Dawe said: "Much of the success of our great convention at Atlanta, Georgia, was due to the courtesy of the Southern Bell Telephone Company, which allowed the use of its lines to call prominent men in all parts of the country. In twenty-four hours over 50,000 calls were made by members of the Congress and it was a splendid advertisement."

Annapolis District.

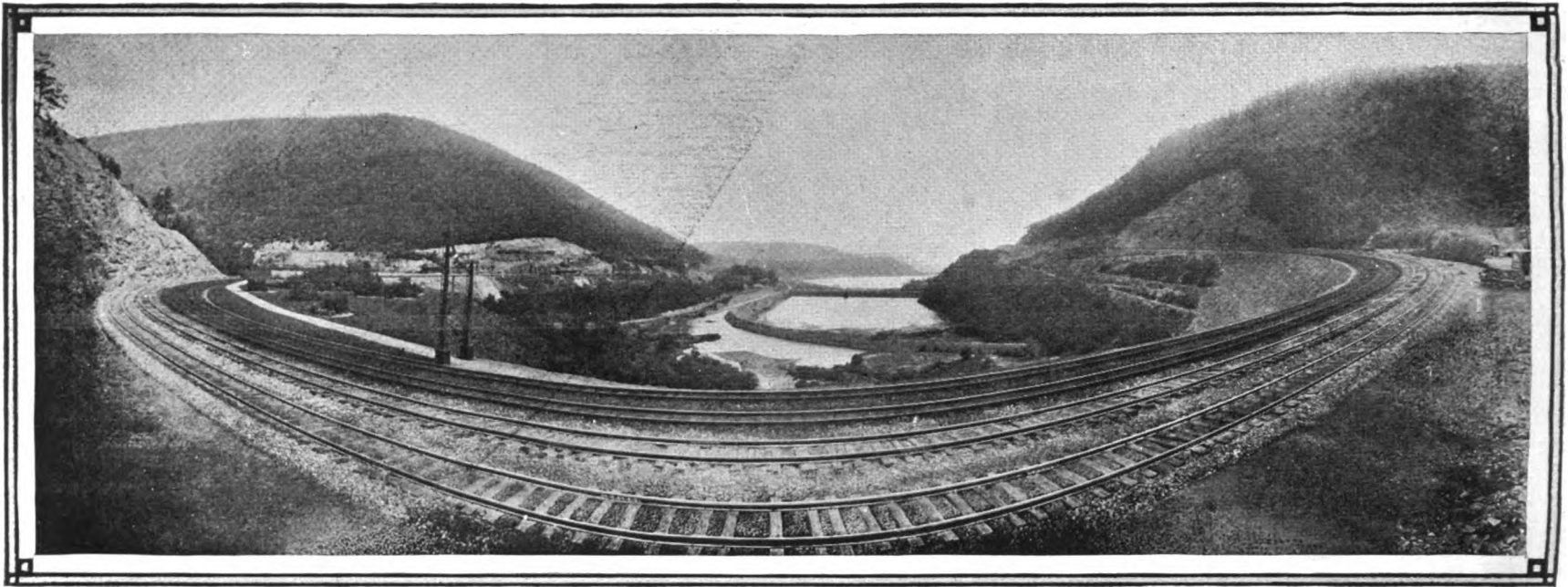
The C. & P. Telephone Co., Gambrills, Md. Annapolis, Md.

GENTLEMEN:—Enclosed please find check for — according to bill rendered. I find the telephone a great satisfaction, and feel that I should thank you for giving the most suitable rates possible. Yours respectfully,

CLEMSON.

Havre De Grace District. The Cecil Star, a local newspaper, in commenting on the recent disastrous fire at North East, Md., states that "the local telephone exchange did good work by sending alarms to all telephone renters in the early stages of the fire."

GERBER.



The Famous Horse Shoe Curve of the Pennsylvania Railroad Just West of Altoona, Pa. The Reservoir in the Center Supplies the City of Altoona. The Curve Obviates the Necessity for a Bridge which is Impracticable Because of an Unusually Heavy Grade—1½ Feet in Each 100 Feet of Track

Insurgents Win Brilliant Victory

HAVERFORD, Pa., June 17 (Special to the *News*). Before a vast and distinguished audience here to-day a final crushing blow was administered to the stand-pat cohorts of The Cross Talk Club by Capt. Daly's husky horsehide hurlers. The Regulars, under the guidance of Capt. Kunkle, were from the start powerless before the masterful battery work and dead-eye fielding of the Insurgents—and not even by the smuggling into the game of a new cork-centre ball in the fifth inning were they able to stave off the inevitable result.

The festivities started promptly at three o'clock. Overtures had been made to the two honest umpires, Hons and Porter, by the overconfident Regulars,—but Capt. Daly had his trusted scouts circulating among the players, and this attempt at "fixing" things was promptly nipped. The first batter struck out at 3.05, but not until nearly four o'clock was the first side retired,—and thereafter it was a tiresome procession, with the Insurgents far in the lead, until the fifth inning. During the fifth and sixth the Insurgent pitcher eased up a trifle and allowed the disgruntled Regulars to catch up. But in the final and deciding inning, with a year's policy of the club at stake and with Capt. Daly shouting encouragement from behind the back stop, he retired the head of the batting order with but a single tally.

The game abounded with scintillating plays. Eipper and "Ty Cobb" Wister were veritable speed artists in the field and on the paths, and "Big Jim" Cunningham at first was a bulwark of strength in the infield. Of Capt. Daly's work too much cannot be said. He led the day's batting with five hits, and his throwing to bases was pretty (rotten). Wiley's running after flies was also commendable.

For the Regulars, Fleming and Barrows fielded perfectly, while Capt. Kunkle and Evans smote the pill (whatever that means) in true jocannon style.

Directly after the game a consolation dinner was partaken of at the Merion Club. A list of those present would resemble the Company's organization chart—and it is sufficient to say that Messrs. Spalding and Buehler presided over the north and south ends of the board respectively, handling the roasts to the delectation of the epi-

cures. After cigars Mr. Kinnard engineered a murderous pool tournament, open to all—while Mr. Hayward acted as head pin-boy in the bowling alleys.

With Capt. Kunkle's permission we will return for a moment to the game simply to append the box score, which is submitted with this comment from official scorer Mauradian: "I beg leave to remark that the umpire in charge allowed the game to be played in flagrant violation of all of the rules of baseball in the matter of quality of strength of teams, as the Regulars had seven men in the field while the Insurgents had eight. Allusions were made to "graft" in tones audible to the scorer, who hereby records them for whatever action is liable in the matter. No account was taken in the following score of battery errors, which were so numerous as to overtax the ability of the scorer in recording them; the error column should therefore be referred to with proper caution."

Our correspondent reports that the claim of discrepancy in the size of the teams is correct—but hints that several of the Insurgents' long hits were relayed in by Regular rooters who were in hiding behind trees and automobiles in deep center field.

The complete box score follows:

INSURGENTS.									
	AB.	R.	BH.	TB.	PO.	A.	E.		
Eipper, 3b.....	7	5	4	4	1	1	2		
Wistar, 2b.....	6	4	1	4	0	5	1		
Daly, c.....	7	5	5	8	7	2	0		
Kennedy, rf, cf.....	6	5	3	5	1	0	0		
Staples, p.....	6	4	2	6	1	3	2		
Cunningham, 1b.....	6	2	1	2	11	0	0		
Repplier, ss.....	6	2	4	7	0	0	0		
Wiley, lf.....	6	3	3	7	0	0	0		
Totals	50	30	23	43	21	11	5		

REGULARS.									
	AB.	R.	BH.	TB.	PO.	A.	E.		
Flemming, 3b, p.....	6	2	2	4	1	2	0		
Brown, cf, rf.....	6	3	1	1	0	0	2		
Drake, 2b.....	5	5	3	6	1	4	1		
Kunkle, p, 3b.....	6	5	4	5	0	0	2		
Evans, c.....	7	4	4	9	12	1	1		
Barrows, ss, lf.....	6	2	3	5	0	0	0		
Frances, 1b.....	6	1	0	0	7	0	1		
Totals	42	22	17	30	21	7	7		

Two-base hits—Kunkle, Daly, Staples, Cunningham, Repplier. Three-base hits—Fleming, Evans, Barrows, Daly, Kennedy, Wiley (2), Repplier. Home runs—Staples, Drake, Evans, Wistar. Stolen bases—Eipper, Daly, Repplier, Cunningham. Base on balls—by Staples 7; by Kunkle 3; by Fleming 2. Struck out—by Staples 6; by Kunkle 7; by Fleming 4. Time of game—2 hours, 25 minutes.

Philadelphia Division W. RITCHIE Division Correspondent

The Philadelphia *North American* recently printed a striking example of a case in which the telephone located a man who, with thousands of others, was attending a base ball game at Shibe Park—the base ball grounds of the "Athletics"—and summoned him to a burning property:

"When the fire started," states the account, "an attempt was made to reach McCullough, but it was unsuccessful. Then *Walnut 750* was appealed to. In less than a minute an announcer at Shibe Park was calling the name of Mr. McCullough, and less than five minutes after the appeal came to the information bureau Mr. McCullough had started for his home."

The Hale & Kilburn Company, of 18th Street and Lehigh Avenue, Philadelphia, has contracted for a short period telephone circuit between Philadelphia and the office of their President in New York.

Between 12.30 and 1.00 P. M. each day a private wire is placed at the disposal of the Hale & Kilburn Company, and in this way Mr. Green, the President, has his Philadelphia office next door to him and learns all that is transpiring.

The several Wire Chiefs in Philadelphia have organized a Checker League. Saturday, June 10, a tournament was held between the Tioga and Lombard teams. Rotter, Myers, Hausler and Lehmann represented Tioga, while H. Taggart, B. Taggart, Massey and King played for Lombard. The Tioga team made the higher score and were awarded a handsome inlaid checker board made by Reif Snyder. Forty-eight games were played, the victors winning 30, losing 15 and drawing 3.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

JULY 15, 1911

NO. 14

Plans and Aims of the Accounting Department

A Paper Read before The Telephone Society of New York, June 20, by P. O. Coffin, Auditor of Receipts, New York Telephone Company and The Bell Telephone Company of Pennsylvania and Associated Companies

IN the consideration of a subject for an Accounting paper this evening, I thought perhaps that the evening might be advantageously spent in describing to you the work and aim of the Accounting Department. This Department, removed to a large extent from sight and hearing, has so increased in scope that, at the present time with a force of about eighteen hundred seventy employees its activities are spread over the combined territories of the New York Telephone Company and The Bell Telephone Company of Pennsylvania and Associated Companies. This territory has an area of approximately one hundred thirty thousand square miles and contains a population of over twenty-one millions, or about 23 per cent. of the entire population of the United States. The plant investment of our Combined Companies amounts to over one hundred ninety-one million dollars; the number of employees of all Departments is over thirty-eight thousand, and the number of telephones about one million five hundred thousand, or 23 per cent. of the total number of stations in the Bell System in the United States.

Were this exclusively a gathering of accounting men, considerable interest and discussion might be excited by elaborating upon the different methods of doing our Accounting work. As such an exposition of detail, however, would involve so many technical considerations of a clerical nature, I concluded that it would be of little interest to the majority of you and have therefore tried not to go so far into detail as to either reflect upon your own knowledge of the business or presume upon your patience.

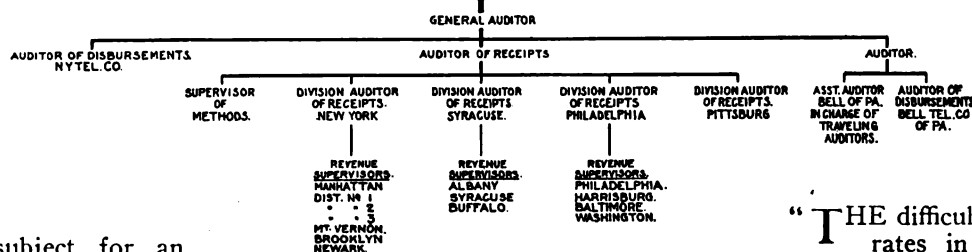
The Accounting Department of our Combined Companies, under the supervision of the General Auditor, is divided into two general heads:

First. Auditor of Disbursements in charge of the General Accounting Department.

Second. Auditor of Receipts in charge of the Revenue Accounting Department.

The Auditor of Disbursements has immediate charge of the official records of the Company; that is, the General Ledgers and Auxiliary Books, and his duties in general consist of checking, verifying, summarizing and recording the financial transactions of the Company upon these records. On these records are kept about one hundred twenty-five main accounts, with various sub-accounts and sub-divisions by geographical areas which, when grouped together and combined, conform to the estab-

NEW YORK TELEPHONE CO.
AND
THE BELL TELEPHONE CO. OF PENNSYLVANIA
AND ASSOCIATED COMPANIES.



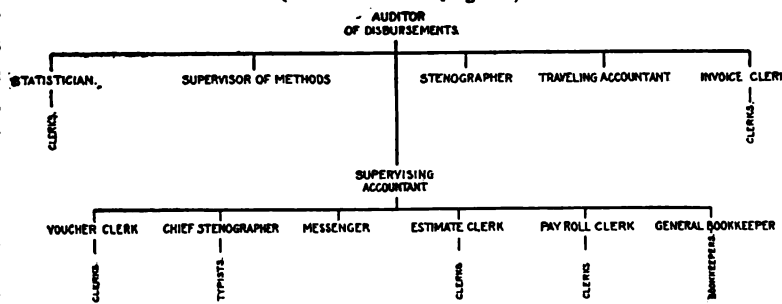
General Organization of Accounting Department

lished standard system of Telephone Accounts provided for by the American Telephone & Telegraph Company's Accounting Circular No. 6.

The Disbursement Division must prepare, distribute and record all vouchers and is required to certify to the correctness of the calculation and approvals of the bills and pay rolls covered by these vouchers. In this Division also is maintained a complete card record, showing name, position, date of appointment, date of each change in position and salary and amount of salary for each employee of the Company.

Statistical data, obtained from the various reports and distributions of Charges and Credits to Revenue, Expense and Property Accounts and received by the Auditor of Disbursements on specified dates from all Departments of the Company, forms the basis of numerous detailed statements and reports to our Operating and Executive Officers and the American Telephone & Telegraph Company. These statements and reports show at the close of each month and each year the value of the Company's property of all kinds, its debts, its earnings and expenses; also various analyses and comparisons which present the accounts in such form as to show a complete and reasonably accurate history of the business, the movement of the various Assets and Liabilities and draw attention to any marked increase or decrease of Revenue and Expense. It is hardly necessary to say that the value of these reports depends entirely upon uniformity of classification, uniformity of methods in distributing and apportioning expenses and the ascertainment of cost units. In order to standardize these methods, classifications have to be published, accounting routines established and forms of reports so standardized as to insure uniform information at definite intervals from all sources. These reports must also be in-

(Continued on page 4)



Organization of Disbursement Division

Telephone Competition

Excerpts from "Public Ownership of Telephones on the Continent of Europe," By A. N. Holcombe, Ph.D., Instructor in Government in Harvard University—Houghton-Mifflin Co., 1911;

THE difficulty with the theory of competitive rates in the telephone business is that the liberty of choice between rival undertakings is illusory. No two competing systems can offer the same range of communication. The subscribers to one system will have no means of conversing with those to the other. Consequently the prospective subscriber is not free to compare the price levels and conditions of service of the rival undertakings. He is compelled to join that system to which are already connected those persons with whom he most desires to converse.

"Moreover, unless he is so fortunate as to find all those persons with whom he desires to converse connected to the same system, he cannot choose between rival services without being thereby deprived of the possibility of effecting a certain proportion of the communications which he would like to carry on by means of the telephone. * * * The most useful telephone system would be one which, like the postal service, reaches everybody. Whatever excludes a portion of the community from participating in the benefits of a telephone system, impairs by so much its usefulness. Now a competitive undertaking does just that. The subscribers to each undertaking are debarred from carrying on telephonic conversations with the subscribers to the other undertaking. If there are several competing systems, the impairment of the usefulness of the service is correspondingly greater. If there were as many sellers of telephone service as buyers, and all were determined to remain in the business, the telephone would have no usefulness at all. * * *

"Fortunately a permanent state of competition in the telephone business is as impracticable as it is undesirable. Unless those who undertake to supply the service succeed in deluding the users into paying for costly sets of arrangements which are not used, they must defray out of their own pockets the expense of maintaining the superfluous plant. Thus competition, instead of reducing the expenses of rendering the service increases them. At the same time it brings no corresponding advantage to either consumer or producer. * * *

"John Stuart Mill * * * wrote in his *Principles of Political Economy* (Book 1, Ch. IX, Par. 4), 'When, however, a business of real public importance can only be carried on advantageously on so large a scale as to render the liberty of competition almost illusory, it is an unthrifty dispensation of the

(Continued on page 3)

The Telephone News

Published the first and fifteenth of each month in the interests of
 The Bell Telephone Company of Pennsylvania
 The Chesapeake & Potomac Telephone Company
 The Delaware & Atlantic Telegraph & Telephone Co.
 The Diamond State Telephone Company
 The Central District & Printing Telegraph Company

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Managing Editor, E. H. HAVENS, 1280 Arch Street, Philadelphia,
 to whom all communications should be addressed

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To employees of the above Companies - NO CHARGE
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 payable in advance

Vol. VII JULY 15, 1911 No. 14

"S. M. Wilson"

WHY don't people sign their names legibly?

True, it is an old question, but since an esteemed contemporary (*Advertising and Selling*) sees fit to revive it, we are glad to join in the campaign. It is really a thoroughly common-sensible line of thought for warm weather.

The varieties of illegible signatures appear innumerable. Most of us, for instance, have seen the common or garden variety which has a tendency to run all over the place something like this:

This is the *spray* signature. What the rambling disposition means we don't exactly know or care. The psychology of it is a matter for wiser heads. But it looks like a waste of perfectly good ink and paper, not to mention energy.

And then there is the signature that defies reading with the naked eye because of its stinginess. It is a sort of a *stub* affair, thus:

The man who signs his name like that

lays himself open to suspicion at once. Is he in hiding? Don't his new shoes fit? Has he dyspepsia; or is it just an inordinate sense of modesty? At any rate, this type deserves criticism with the rest.

It wouldn't be satisfactory, of course, to omit the "cut loose" style that always recalls the *four-flusher*. Here it is:

To say that every man who decorates (?) a sheet of paper in that fashion is acting the part of the devotee of Hoyle might be overstepping our editorial privilege. But isn't it true when we stumble across such a signature, that we wonder how much economy might accomplish in elbow-grease and in time of the writer and in patience on the part of the reader?

There is one other style that strikes us as a producer of more than a healthy amount of vivid language. From its tendency to run off into nothingness one might term it the *fade away*. Sometimes it is as bad as this:

Aside from its illegibility, does it not suggest this turn of thought? Ball game—dictator of letter mysteriously absent—stenographer in a hurry—fade-away signature.

It is said that one should not criticize *de-structively*. We were thinking of that all the time. The writer in *Advertising and Selling* was undoubtedly thinking of it also, for he makes a *con-structive* criticism at the end of his article. It is to the effect that those who really can't think of radically changing their signatures or even of remodeling them, should instruct their secretaries and stenographers to practice this little stunt down in the southwestern corner of the typewritten sheet:

S. M. Wilson / D.

At all events, it can't do any harm to try out this little plan. Somewhere it may save annoyance and perhaps profanity. We like the idea. Therefore we pass it on to both dictators and typists.

Out of the Rut

From a Magazine Advertisement

DO you happen to know how astronomers measure the distance from the earth to a star? The method points a business moral because it illustrates how prone we all are—the scientist as well as the business man—to get into a rut and stay there until someone comes along and with a simple question or suggestion jolts us out of it.

The old method of measuring the parallax of a star—that is to say, its distance from the earth—was something like this: A party of astronomers would set out (from Paris, let us say) and travel perhaps six thousand miles, or one-quarter of the distance around the globe. Arrived at their destination they would observe a certain star and establish the angle at which a straight line drawn from that star intersects the earth at that point. Meanwhile a second party of astronomers who had remained at home made a simultaneous observation of the same star from the Paris observatory.

The dimensions of the earth itself being known it was possible to estimate the length of a straight line through the earth connecting the two points on the earth's surface from which the two observations were made. The angles formed with this base (or earth) line by straight lines drawn from the star were established by the observations; then with the length of the base line and the sines of the angles known it was possible to calculate how far the two converging lines directed from separate points must extend into space before they met at the star.

Note that in order to obtain this result it was formerly considered necessary to observe the star from two widely separated points on the earth's surface, leading astronomers to undertake long and expensive journeys. This method might still be the one in vogue except that one day the man who wasn't in the rut happened along.

This man said to astronomers: "The earth revolves on its own axis once in twenty-four hours, doesn't it?"

They admitted that it did.

"Well then, why don't you sit comfortably at home and let the earth carry you around? Six hours from now the earth will have made one-quarter of a complete revolution and Paris will be thousands of miles from the point in space that it occupies at this moment." And on this suggestion is based the present method by which an astronomer measures the parallax of a star without leaving his own observatory.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

Allentown District. The business office formerly at 109 South Main Street, Bethlehem, was moved on June 26 to the Company's new building at 23 South New Street. The cut-over is expected to be completed on July 15.

On June 21 the Patrons Telephone Company, of Warren County, N. J., signed contracts with the West Jersey Toll Line Company (a Connecting Bell Company) for service from the Great Meadows exchange. The Patrons Telephone Company is incorporated and will operate in the northwestern part of Warren County. In this section communication has been limited to the rural mail delivery.

At 7 P. M. June 12 Allentown and vicinity was visited by an appalling electrical storm, accompanied by an avalanche of hail and a downpour of water, causing damage to the extent of approximately \$60,000. Streets were flooded, trees uprooted, shutters ripped off, awnings smashed, wires torn down and roofs carried away.

Our Company had 250 lines and 600 stations out of service. The principal troubles were station protectors and aerial cable burned out by foreign wires falling across them. All of the trouble was O. K. by the evening of the 15th.

Immediately after the storm the telephone call rate increased to a phenomenal peak, apparently caused by every subscriber in service calling up friends to ascertain their welfare and the extent of damage they had suffered. Our operators should be commended for the excellent work they performed under such trying circumstances. Practically the entire force was on duty until about midnight.

Altoona District. On June 21 the commercial office at Altoona was moved from 1112 13th Street to 1120 12th Street, where larger quarters have been taken. In the new location the street floor will be occupied by the clerks, cashier and District Manager, and the floor below by the salesmen. Additional room will thus be provided for the Plant and Traffic offices at 1112 13th Street.

The removal recalls an incident which happened there thirteen years ago when K. C. Raup, now District Manager at Williamsport, was in charge of all three departments at Altoona. We then had about 450 telephones in service there. A storm crippled our service somewhat, but so seriously affected the opposition that we began to stir up applications in all directions. In one month 114 applications were received and 86 of the stations were O.K.ed almost immediately—nearly a 20 per cent. gain. Our representative met the other company's manager and asked how conditions were generally.

"Awful!" was the reply; "everything is out. It seems a shame to keep the operators 'on duty' when there isn't a line working."

"Why don't you shut up shop and send them home?" he was asked.

"I'll do it," said the man, and away he went and put the suggestion into effect.

Wilkes-Barre District. The local papers are authority for the news that all through passenger trains on the Lehigh Valley Railroad are being equipped with Western Electric portable telephones and line poles so as to facilitate the movement of trains, avoid delays in case of accident and improve the service generally. This includes fourteen trains, of which two are already equipped. The port-

able telephones are located in the baggage cars. When communication is to be had the train is stopped and a line pole—similar to a fishing pole but with a hook on the end—is attached to the telephone wires which parallel the tracks. The portable telephone then is used. The operator of the telephone presses a button at the side of the box and talks with the agent at the nearest station. Instructions accompany each box and the conductor is responsible for the condition and care of the equipment.

Williamsport District. The *Middleburg Post*, a weekly newspaper of over 5,000 circulation, published in Middleburg, Snyder County, Pa., has inaugurated a system of gathering personal news items throughout the county by telephone. The editor has arranged with the telephone operator to call the subscribers on each farmer's line by five short rings every Monday morning. The subscribers have been requested to have their news ready and when the call comes to take down the receivers and each in turn to give his items to the reporter.

Snyder County is operated by a new connecting company—the Middlecreek Valley Telephone Company, which now operate about 300 telephones—about twice as many stations as the Opposition Company.

Organization and Territorial Changes

At meetings of the Board of Directors of The Bell Telephone Company of Pennsylvania, The Delaware and Atlantic Telegraph and Telephone Company, The Diamond State Telephone Company and The Central District and Printing Telegraph Company, held June 29 and 30, W. C. Fink, Assistant Treasurer, was also elected Assistant Secretary of those Companies.

On July 1 the Main Line Commercial District of the Philadelphia Division, with offices at Lancaster Avenue below 52d Street, Philadelphia, was merged with the Central District at 1230 Arch Street. Commercial matters for the following exchanges are now taken care of from the main office in Philadelphia: Ardmore, Berwyn, Bryn Mawr, Cynwyd, Devon, Lansdowne, Llanerch, Malvern, Merion, Narberth, Newtown Square, Paoli, Sharon Hill, Sugartown, Union Station and Wayne.

H. C. Ross, Voucher Clerk, has been appointed Supervisor of Methods and Forms, Disbursement Division of the Accounting Department, Philadelphia.

Pittsburg Division

Effective July 1, the Washington Sub-district, Pittsburg, was transferred to the Pittsburg District. A. W. Love was appointed Local Manager, vice C. Gibson, appointed Rural Salesman.

W. C. Knight, Fieldman, has been made Field Engineer, Plant Supervisor's office, Greensburg District.

H. E. Pfoff, Assistant Foreman, has been advanced to Foreman, Construction Division.

W. Ryan, Installer, has been appointed Central Office Man at Grant.

A. Poe and W. E. Edson, Fieldmen, are now Field Engineers, Plant Supervisor's office, Wheeling District, and C. J. Johnson, Special Inspector and Fieldman, is now Field Engineer in the same office.

C. E. Boleky, Clerk, has been appointed Field Engineer, Plant Supervisor's office, Pittsburg District.

F. S. Cooper, Installer in the Pittsburg District, has been made Repairman at DuBois, Pa.—Butler District.

Washington Division**R. G. HUNT, Division Correspondent**

One of our Washington Traffic supervisors was called the other day by a woman who was about to close her house for an indefinite period. She said that our operators had always been polite and attentive, that the service had been uniformly good and that she believed in giving praise where due.

Pursuant to the decision of the Interstate Commerce Commission in re. William E. Shoemaker vs. The Chesapeake and Potomac Telephone Company, a canvass has just been completed of the suburban rate subscribers in the Cleveland and Takoma central office areas, the result being that out of 75 stations a satisfactory percentage were changed by supersedure to city rates and a good increase in annual revenue was obtained. It is believed that the few lost subscribers will soon be regained at schedule rates.

An application has been received from the McKinley Manual Training School for private branch exchange service with two trunk and 22 stations. This is the second of the local high schools to arrange for private branch exchange service during 1911. The McKinley School was just about to install an interior system of its own, and extra efforts were made to induce them to take our service instead.

Officials of the Columbia Institute for the Deaf and Dumb, one of the most famous institutions of the kind in the world, have also signed for private branch exchange service with 2 trunks and 18 stations. Like the McKinley School, they also were just about to purchase an interior system, and our salesman's best arguments were required to change their determination.

The Cecil Apartment House management has signed for 37 additional stations. These stations are not to be installed until next month, but they constitute a good offset to the June disconnections.

No. 2 private branch exchange installations have been arranged for by E. H. Everett and Mrs. Emily O. Mulligan. Mr. Everett has a handsome new home on Sheridan Circle, in the city's exclusive residential section. He will have 7 stations. Mrs. Mulligan has signed for 4 stations. Both of these subscribers will undoubtedly require more stations next fall.

Telephone Competition

(Continued from page 1)

public resources that several costly sets of arrangements should be kept up for the purpose of rendering to the community this one service. It is much better to treat it at once as a public function, and if it be not such as the government itself could beneficially undertake it should be made over entire to the company or association that will perform it on the best terms for the public.

"Clearly, the telephone is such a business."

Life is a school in which there are two important lessons—self control and sacrifice. Some learn both lessons before they are forty and some never.

Plans and Aims of the Accounting Department

(Continued from page 1)

telligent so as not to make it necessary for an expert accountant to accompany them. Our system of accounting must be consistent so as to be indicative of things accomplished. For instance, in divisions and districts where conditions are more or less normal, mercurial fluctuations in Earnings and Expenses due to foreign considerations and adjustments are not significant of facts and defeat the purpose for which the reports are intended.

It is the duty of the General Auditor to know that all moneys belonging to the Company are properly accounted for and promptly deposited in authorized depositories and that disbursements of the Company's funds are made only upon proper authorization. He is responsible for the bonding of employees and is the custodian of such bonds. Under direction of the Auditor in Philadelphia, Traveling Auditors make periodical examinations of the accounts of officers, agents and other employees entrusted with the handling of the Company's money and property. All cases of defalcation or irregularity relating to the accounts or funds of the Company are promptly reported to the proper officer by the Auditor and such steps taken as the necessity of each case requires. The latitude allowed these Traveling Auditors in their work is quite extensive, as they are required to investigate and make report of anything that comes to their

for the tabulation of these reports upon those immediately in charge of the operating departments.

Second. That by having the tabulated facts concerning its own work each Department will be able to obtain the earliest possible date and in any form desired the necessary information to develop an intelligent understanding of costs and results.

Third. That by the making of detail comparisons of what is being done in the different parts of the territory and what has been done at different time periods, future efficiency may be facilitated.

The carrying out of this work in the field means specializing in the different Departments at a place where it can best be handled in order to prevent the development of free-for-all accounting. The General Auditor being in charge of the Company's General Accounts, should see that standard accounting practices are established, and that these standards are thoroughly understood and lived up to by the field forces throughout the territory. In order to do this he must, by means of Traveling Accountants, keep in constant touch with the detail accounting methods of the operating departments in all parts of the territory.

Revenue Accounting Department

The Revenue Accounting branch of the business has developed in the same ratio as the growth of business itself. In the early days, when the territory covered by any one of our

in discussing briefly the duties of the Revenue Division, the general organization of which is to be discussed at length later on. The keeping and billing of subscribers' accounts, which constitutes the greater part of the revenue work, is handled at Accounting Centres for the different divisions of our territory in the following cities:

For the *New York Telephone Company*:

Three Centres in New York City—for one hundred twenty-five thousand accounts in Manhattan and Bronx; one Centre located at Harlem, one at 38th Street and the third (carrying accounts for the lower portion of Manhattan) temporarily located in the Willoughby Street Building in Brooklyn.

Mount Vernon—For twenty-seven thousand accounts of the Westchester Division.

Brooklyn—For seventy-six thousand accounts of the Long Island Division.

Newark—For eighty-three thousand accounts of the New Jersey Division.

In the Up-State territory, Accounting Centres are located in Albany, Syracuse and Buffalo for approximately one hundred fifty thousand accounts of the Hudson, Central and Western Divisions.

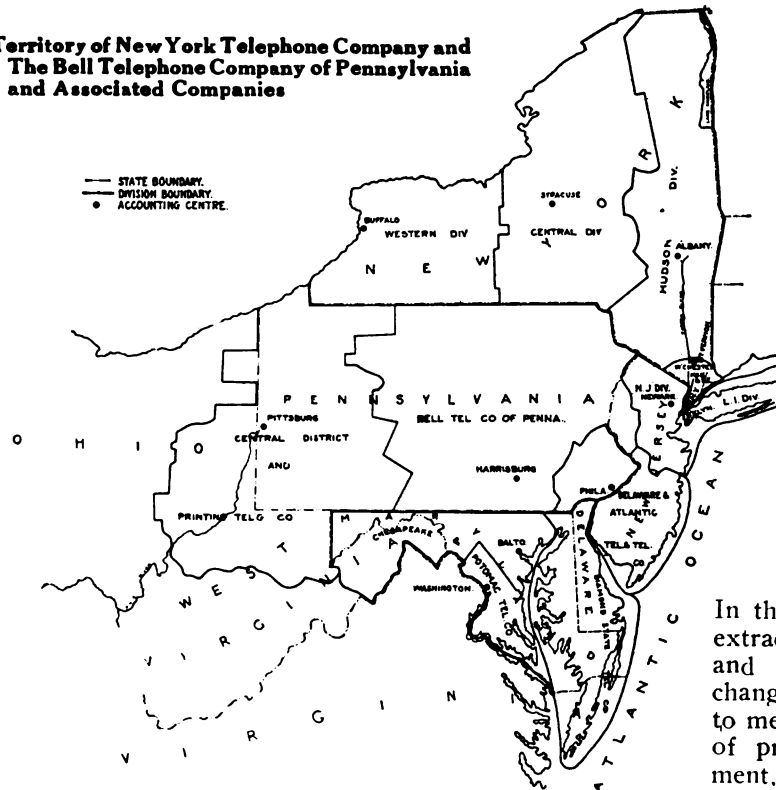
For the *Bell Telephone Company of Pennsylvania and Associated Companies*:

Philadelphia—For one hundred forty-eight thousand accounts of the Atlantic Coast and Eastern Pennsylvania Divisions.

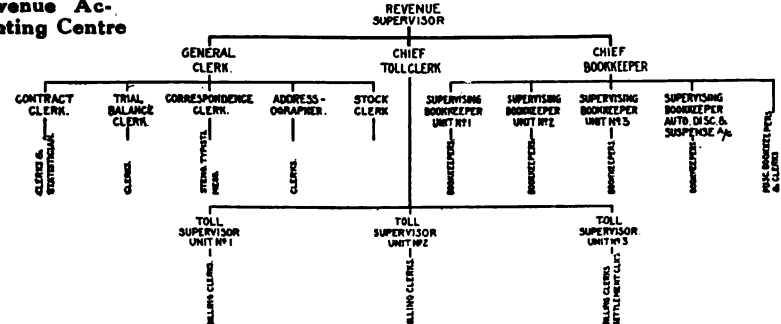
Harrisburg—For sixty-one thousand accounts of the Harrisburg Division.

Pittsburg—For one hundred sixteen thousand accounts of the Pittsburg Division.

Territory of New York Telephone Company and The Bell Telephone Company of Pennsylvania and Associated Companies



Organization of Revenue Accounting Centre



Companies was comparatively small, when the local service rates were on an unlimited basis and when the amount of toll business was small, the Revenue Accounting problem was an easy one.

In the past few years, however, the extraordinary increase in stations and Connecting Companies, the change in large cities from unlimited to measured service, the introduction of private branch exchange equipment, the various classification of stations and revenue, the entering

of telegram charges on subscribers' bills and the enormous increase in toll business have resulted in a condition which has made the problem of Revenue Accounting a very complex one. With this expansion of the telephone business the Revenue Accounting work has so increased in its detail, and its place in the general organization has become of such importance that it is necessary to specialize in this work in order to obtain uniformity of detail methods and expeditious application of standard routines; and, further, to obtain that efficiency which in the revenue work facilitates the collection of the revenue and prevents disputes and misunderstandings between the Company and its patrons.

I shall now take a few minutes of your time

In the Chesapeake and Potomac territory Accounting Centres are located in Baltimore and Washington for approximately seventy thousand accounts in those two Divisions.

The revenue work in each Accounting Centre is divided into three general Divisions, each in charge of a Supervising Clerk reporting directly to the Revenue Supervisor. These three general Divisions are the General Clerical, Toll and Bookkeeping Divisions—whose duties I will describe briefly:

The duties of the General Clerical Division consist of the handling of all work in connection with contracts, line orders and station statistics; also addressing records, correspondence, requisitions for stationery and supplies, and the preparation of various reports made to the Auditor of Disbursements and other Departments.

Contracts received from the Commercial Department are examined and checked with authorized contract instructions and with the completed work reports or line orders. These contracts that have been accepted by the Commercial Department and are not in accordance with authorized instructions are returned to that Department for proper execution.

From the completed work reports or line orders are obtained the station statistics, which

attention as affecting the welfare of the Company.

It would seem that the functional form of organization of our Company is developing a tendency toward having the field forces of the operating departments gather together the details of the financial transactions of their departments, do all the necessary detail accounting work pertaining to these transactions and report at prescribed intervals the results in condensed form to the Accounting Department. The advantages of this sort of administrative accounting appear to be:

First. That it insures accuracy, uniformity and completeness of the records of the Company's expenditures by placing the responsibility

Plans and Aims of the Accounting Department

(Continued)

are properly classified and posted to a daily Station Record to be used at the close of the month in preparing the Station Reports to our Operating Officials and the American Telephone & Telegraph Company. The work reports or line orders are also used by the Addressograph Clerk as authority for making all changes in the addressing records.

Toll Division

The duties of the Toll Division consist of the handling of all central office message records used in billing subscribers and preparing settlements of toll business with Connecting Companies.

All new and superseding contracts, completed work reports or line orders, and approved Traffic Agreements with other Companies are received and recorded on file cards. These cards show for each subscriber and each Connecting Company all information necessary for the guidance of the clerks in preparing toll bills.

Monthly local message records are received from the Traffic Department in the Toll Division where they are counted and recorded for each month for each subscriber, and the result forwarded to the Bookkeeping Division. Also, toll tickets, conveniently arranged, are forwarded on specified dates by the Traffic Department and the American Telephone & Telegraph Company. A record is kept showing each central and long distance office, date of tickets and message records and date received. Any delay in receiving tickets or message records is immediately reported to the originating office and steps taken to trace them.

The Toll Division receives copies of all instructions affecting toll rates issued by this Company and the American Telephone & Telegraph Company, which are used for the purpose of rating toll tickets for those points where this work is not done by the Traffic Department.

After toll tickets have been rated they are recorded on toll service statements, at the same time being filed with the cards. On the toll statements are also recorded all charges for telegrams transmitted by telephone, tickets covering these charges being forwarded from the local offices of the Western Union Telegraph Company. The toll service statements include charges for messages and telegrams transmitted during the period from the twenty-first of each month to the twentieth of the next succeeding month, except in the Up-State Division of the New York Telephone Company where the toll billing period is from the twenty-sixth of each month to the twenty-fifth of the next succeeding month. Statements for public telephone accounts also show the local message charges for the billing period. After the last tickets for the billing period have been posted, the toll service statements are totaled and forwarded to the Bookkeeping Division, and the tickets removed from file, packed and forwarded to the local offices of the Commercial Department.

As soon as possible after the close of each month, settlements with the American Telephone & Telegraph Company, the Western Union Telegraph Company and other Connecting Companies are made in accordance with special agreements and instructions covering each particular case.

Bookkeeping Division

The duties of the Bookkeeping Division consist of the detail ledger work in connection with

the keeping and billing of Accounts Receivable of the Company.

Subscribers' contracts for telephone service are recorded on loose leaf ledger forms ruled so as to carry one account each for a certain period of years.

Preparation of Bills.

Before the fifteenth of each month the Bookkeeping Division receives from the Toll Division records showing the local message usage during the preceding month for each measured service subscriber's account. The number of messages used is posted to the ledger account in a space provided for that purpose and deducted from the number of messages to the subscriber's credit on the first of the month. When a subscriber's local message usage exceeds the number of local messages named in the contract, the charge of such additional messages is entered on the ledger account to be included on the bill to be forwarded on the first of the following month. At the expiration of a measured service subscriber's contract year, where the subscriber's local message usage is less than the number of messages named in the contract, the account is adjusted on the basis of usage and credit is allowed.

Before the twentieth of each month the bookkeeper enters on the ledger accounts the local service charges to be billed in advance on the first of the following month. These local service charges and, on measured service accounts, the number of local messages used during the preceding calendar month, are then posted to the bill forms and ledger accounts.

When the toll service statements are received from the Toll Division, the toll charges are entered on the ledger accounts and bills.

As soon as the last day's credits have been posted on the accounts the unpaid balances are checked with the Commercial Department's report of "Balance Due" items. The bills are then completed by entering the unpaid balance and inserting the total amount due. The second stubs are detached and forwarded to the local Commercial office and the bills enclosed in outlook envelopes. A "Balance Due Notice" is enclosed with each bill showing an unpaid balance over a certain amount, except in special cases where they are omitted upon request of the Commercial Department. The envelopes are then sealed, stamped and packed in mail bags and forwarded to the Post Office in time to be delivered on the first day of the month.

Contract Changes.

Contracts and completed work reports or line orders covering new service, supersedures, disconnections, etc., are forwarded daily to each bookkeeper and he is required to handle at once all such work received during the first three weeks of the month. During the last week of the month work of this kind, except that required by disconnection orders, is held up pending the completion of the bills. This work involves a great variety of adjustments, especially for supersedures and disconnections of private branch exchange and measured service accounts which necessitates adjustments being made on the basis of the proportionate local message usage for the period of service.

Credits.

Each day's collections of cash are reported by the District Commercial Managers and Agents to the Revenue Accounting Centre on daily summary collection reports supported by paid stubs. After verification of the totals, the summary collection reports are recorded on a monthly summary of cash collections and for-

warded to the Treasurer. The stubs are distributed to the bookkeepers who post the amounts paid to the ledger accounts.

Credit memoranda received from the Commercial Department, are checked by the General Clerical Division with the authorized instructions as to proper approval, arranged by Ledgers and forwarded to the bookkeepers who post the amounts on the Ledger Accounts.

Balancing Ledger Postings.

The charges during the month as shown by the Ledger Accounts and the balances at the end of the month are listed on adding machines or by hand, a separate list being taken off for each classification of revenue. After the ledgers are balanced the bookkeepers prepare and forward detailed trial balance reports to the General Clerical Division, where the charges and credits are summarized and used in the preparation of various reports made to the Auditor of Disbursements for the necessary entries on the general books of the Company.

Revenue Accounting Expense

The cost of running any department being of such vital interest to our Company demands a most careful and continual supervision of the expense involved. In our combined territory there are approximately eight hundred fifty-five thousand accounts, the revenue therefrom amounting to over one-third of the Bell Revenue from the Associated Companies in the United States. The enormous amount of detail necessitated for keeping an individual account with each subscriber requires a clerical force of seventeen hundred fifty-six employees in the Revenue Department, divided into six hundred twenty-one males and eleven hundred thirty-five females. To handle the work properly entails a labor expense of approximately six hundred eighty-six thousand dollars per year, but as it pays to keep the Revenue work up to the highest standard of efficiency possible, and as efficiency means the best work at the lowest cost, I believe that we have been conducting this work as economically as our past conditions and experience have permitted. It is our opinion, however, that for our combined department, a combination coerced by the economy of business management, a greater efficiency can be obtained which will not only result in far-reaching economies, but will steadily improve the character of our work. The method or plan of procedure by which we may develop this efficiency must take into consideration our *organization, standard routines* and their application in the field and the personnel of the *Revenue Accounting Force*.

Organization

As the principle of functional organization has been accepted for and applied to the work of the other Departments, the functional treatment of our Revenue work should follow, as it is practically a separate and distinct phase of the business requiring specialization along uniform lines as to methods used and their application to Revenue work. With this idea in mind we feel that an organization along the lines of our present one is the proper plan for obtaining the best results. It provides for the centralization of Revenue work in Accounting Centres throughout our territory in the location of which certain economies in conducting the business, local conditions and convenience to the public have been considered. Each Accounting Centre is in charge of a Revenue Supervisor trained in our methods of Accounting and having under him the necessary force of bookkeepers and clerks organized into the Bookkeeping, Toll and Gen-

Plans and Aims of the Accounting Department

(Continued)

eral Clerical Divisions. This is the standard organization for carrying out the work in each Accounting Centre, the supervision of the General Clerical and Bookkeeping Divisions being combined where possible. The Accounting Centres are associated into groups or divisions. Each division, determined by the extent and development of the territory, is placed under the supervision of a Division Auditor of Receipts, who reports to the Auditor of Receipts in New York, who in turn reports to the General Auditor for the reason that, although the Revenue work is somewhat of a Commercial nature, it is very closely associated with the General Ac-

counting work. Uniformity of methods, however, necessitates standard detail routines for the guidance of our clerical forces. Our present routine in its general features is the same in each Accounting Centre, but in the several Divisions of our combined territory there is some one Division that manages some Department or performs some part of the work more thoroughly and more economically than any of the others. If, therefore, we organize our Revenue Department on a mutual basis, so that each Division can learn from the other what the other knows best and does best, and each contribute to the general store of knowledge, the Revenue Department as



Section of Bookkeeping Division, 38th St., New York



Toll Division, Harlem Office, New York

counting detail and provides a certain check upon other Departments. With this line of organization we feel that we not only obtain the elasticity of the functional organization, but place the responsibility of the field work upon our local employees who are familiar with the conditions in each district, at the same time obtaining uniformity of control as well as uniformity of ideas.

Standard Routines

Relative to the subject of routines, it must be borne in mind that in order to obtain the efficiency desired there must be uniformity of methods, and the importance of which cannot be overestimated, as it is a very great source of strength to the organization in every way. With a number of Divisions or Centres working under a uniform system we are able to transfer em-

a whole will be a gainer and we can construct a standard routine from these individual and scattered superiorities which should be efficient to a high degree.

Uniformity in routine also means standardization of forms which results in the saving of thousands of dollars a year owing to the fact that by ordering such forms in large quantities for all Divisions the Western Electric Company can purchase them at low prices.

Our present routine embraces what is known as the Single Account System; that is, the account of an individual subscriber is kept on a loose-leaf ledger sheet ruled to carry the same account for a certain period of years. I believe that our Companies are the only ones using this system, other Companies preferring to run a combination of accounts on the same sheet. Both systems have their advantages and are being considered by the American Telephone & Telegraph Company. After a long study of Revenue Accounting work, that Company is preparing a proposed routine which will be submitted to the local Companies for criticism as to its universal application.

The Revenue Accounting problem grows more complex as the telephone business develops. We not only have to carry on our daily work, but are called upon continually by our Executive and the different Departments for reports and statements, which means that our system of Revenue Accounting must be such that almost

(Continued on page 7)



Bookkeeping Division, 81 Willoughby Street Building, Brooklyn, N. Y.



Toll Division, 81 Willoughby Street Building, Brooklyn, N. Y.



Bookkeeping Division, Newark, N. J.



Toll Division, Newark, N. J.



Toll Division, Albany, N. Y., Office

any information may be easily obtained and any system which is to be proposed for universal adoption must be one that will not only provide for the present alone, but should be so elastic and on such a broad scale that it will stand any amount of expansion and keep pace with the growth and demands of the business.

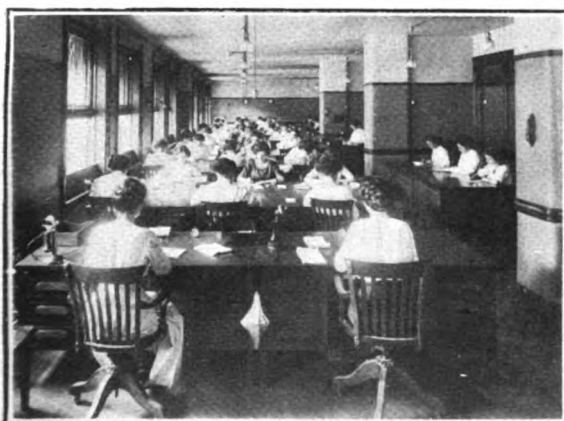
Our routine should also be economical and therefore devoid of superfluities, such as elaborate check ledger and check error work, minuteness and detail in making routine settlements with Connecting Companies, especially with Connecting Bell Companies and the American Telephone & Telegraph Company; also detail verification of statements received from such Companies, and exhaustive checking of clerical work. Although we should check and verify enough of our work to convince ourselves that we are maintaining the necessary safeguards, nevertheless I believe that considerable expense along this line can be saved by an effective organization and supervision in doing the work the first time.

After the development of a universal routine we must consider its detailed application to our field work; that is, we must study to develop as near an ideal way as possible of doing this work—a method of getting the greatest efficiency from our employees. There is as much difference between the right and effective way of preparing a subscriber's bill or toll statement, handling a line order or arranging the periods during the month for handling the different details, and the wrong and ineffective way of doing this work

in consideration of the fact that a billing clerk handles from fifteen hundred to twenty-two hundred subscribers' accounts. If the posting is done at intervals it is likely to retard some part of our work unless the intervals are carefully determined, and in any case the entries for the last few days of the billing period have to be made daily in order to complete the statements and forward them to the Bookkeeping Division at the earliest possible date for billing. This is only one example of the many details that are so closely interwoven with each other in the general routine that they demand a most constant and patient study for improved methods.

Bookkeeping and Toll Divisions
Syracuse, N. Y.

Toll Division, Philadelphia



Toll Division, Buffalo, N. Y.

Bookkeeping
Division,
Pittsburg,
Pa.



as there is between the right and wrong way in the performance of any other part of the telephone business. For example: The work of our Toll Division, which involves about 30 per cent. of the Revenue Accounting labor expense, is mostly made up of a number of physical motions in the assorting, arranging and copying of tickets, obtaining data for certain reports and entering the charges for toll service on the toll service statements. Since the number of accounts that a toll billing clerk can handle depends upon the systematic control of these physical motions, the movements of a clerk in handling the work must be studied and analyzed so that the most effective and best way can be obtained, thereby standardizing that particular process of the work. For instance, the question might be raised as to whether we should post charges on toll service statements daily or at specified intervals during the billing period. If this work is done daily the same number of entries would be made, but it would necessitate a daily handling of the tickets and statements by the billing clerks, involving considerable labor,



Bookkeeping and Toll Divisions, Washington, D. C.



Bookkeeping Division, Philadelphia

The study of improved methods brings up the consideration of mechanical and automatic features in the saving of manual labor, which, although having a larger field for the exercise of ingenuity in the operating branch of the business, have been introduced into both branches of the Accounting Department with a consequential reduction in expense. For instance, the addressing system saves thousands of dollars in the printing of bills, stubs, pay rolls, ledger heads,

Plans and Aims of the Accounting Department

(Continued)

toll service statements, etc., formerly done in longhand, and has relieved the bookkeepers to such an extent that they are able to take care of a much larger number of accounts. The change from solid-bound ledgers to loose-leaf ledgers with automatic locks, the outlook envelope with combination machine for sealing and stamping them, the use of adding machines and comptometers and the introduction of adding attachments on typewriting machines are some of the innovations that have been introduced to obtain cheaper and better methods of accounting without in any way lowering the standard of the work. As the operation of machines necessitates control rather than strength, the use of them admits of the employment of a female force, which results in lower operating cost units. The American Telephone & Telegraph Company recognizes the importance of the use of mechanical devices in telephone work and has lately organized for the consideration of the use of

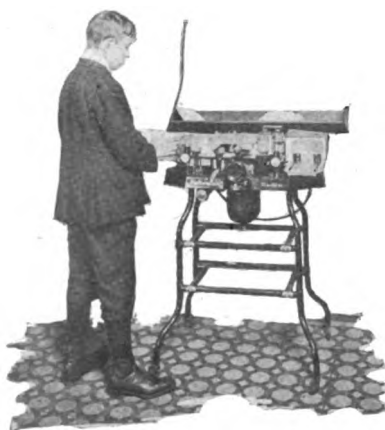
which retards the rapidity of doing the work. The man down the line is too busy doing his every-day work to experiment on his own account. It is, however, a part of his duty to make any suggestions which he thinks will be beneficial, but as it is sometimes the tendency of a field force to work along the lines of least resistance, the individual employee must give immediate and unquestioned obedience to the routine in order that its efficiency may be thoroughly tested. This means that the planning and investigating and preparation of routines must be left to a central bureau or staff, the good results of whose work we have already experienced in the form of a complete Revenue Accounting Routine, begun June, 1909, and completed April 1, 1910, for The Bell Telephone Company of Pennsylvania and Associated Companies. As an example of the result of this routine a saving of approximately twenty thousand dollars in labor expense in the Philadelphia Accounting Centre alone was effected during the first year after its installation.

A further example of the work of this specializing force is an experiment which we are conducting in Philadelphia in conjunction with the American Telephone & Telegraph Company, with the idea of developing a mechanical system

is placed the form to be written, with registers by which the machine will add or subtract. It has a manifolding ribbon device for making one or two copies of the same writing as may be required, and a tally, consisting of a roll of paper carbonized on one side, for accumulating the writing or any part of the writing that may be desired. The machine is equipped with the universal keyboard and typists who are familiar with other typewriting machines have no difficulty in acquiring a proficiency in the operation of it.

Broadly speaking, from the first to the twenty-third of the month the work of the operator is the posting of toll charges on statements and credits on ledger sheets; from the twenty-third to the end of the month the recording of charges on bills and ledger accounts. By this arrangement of the work one operator under this system takes the place of a toll billing clerk and a bookkeeper under our present one, the economy of this system being due to the fact that it provides for a mechanical means of combining in one operation a number of operations now done by hand.

Our experiment has not been completed, and when completed may show the system to be inadequate for practical use. A demonstration,



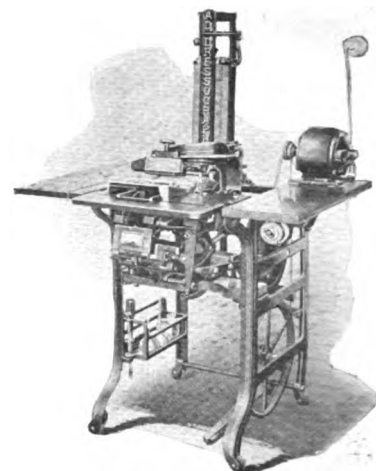
Envelope Sealing and Stamping Machine



Adding Machine



Typewriting Machine with Attachments for Adding and Subtracting



Addressing Machine

such devices throughout the Bell System, which ought to result in immeasurable benefit to the Associated Companies.

It is a recognized fact that systems and methods become obsolete as time goes on, and that is the reason why we have to plan and study to improve them. The best practice of yesterday may be the laughing stock of to-day, and as we rid ourselves of antiquated methods and settle upon a better practice under a new routine we try not to fix it as a finality nor turn a deaf ear to suggestions. With this idea in mind we have given considerable thought during the past two years to the improving of methods whereby the cost of Revenue Accounting work could be reduced and have maintained a sort of staff organization for the planning of methods and the testing of ideas which we believed were in the line of progress. This staff organization is under the direction of the Supervisor of Methods, whose duty it is to study, investigate and outline plans and methods for future facilitation of our work and prepare standards for the measuring of individual efficiency.

The first duty of the field force, which we may term the line, is fidelity to routines in order to eliminate mental and physical perplexity

to be applied to Revenue Accounting work. This system provides for the use of a billing-adding machine in connection with the writing and addition of toll statements, the posting of credits to the ledger accounts, the recording of all charges on bills and ledger accounts, distribution of revenue and other incidental work.

The machine used is composed of a typewriter consisting of keyboard and type mechanism, movable over a flat horizontal bed upon which

however, made last September on an improvised machine for thirty-two hundred accounts showed such possibilities of development that we recommended the purchase of six machines to give the system a thorough try-out, and we hope to have some of those machines working by August 15. However, if we find that this system does fail we feel that we have started an agitation along the right lines and that the time of our staff force was well spent.

This idea of staff organization is not a new one, as it is already embraced in the organization of the Plant, Traffic and Commercial Departments. The staff force is to our field what the good road is to an automobile, and a centralized staff working in conjunction with the field forces, we believe, is necessary in an area and organization as extensive as ours to aid the general supervision in obtaining an economical interplay of employees, machines and methods.

Revenue Accounting Force

While I do not wish to minimize the importance of routines and methods, I would say, however, that the efficiency of the administration of the Accounting Department depends more upon the personality of our employees than upon the routines under which they work. Careful judgment, therefore, must be exercised by those who select the employees who are con-



Bookkeeper's Standard Desk

stantly being added to our clerical forces. Candidates for supervisory positions, besides being intelligent, must possess the requisite amount of executive ability, because upon them not only depend the loyalty and industry of our forces and the intelligent application of routines, but, what is equally as important, the development of future candidates for the higher supervisory positions.

Although our employees must conform strictly to the routine until a better practice is determined, our supervisors should hold conferences with their subordinates at different times for discussing the different points which come up in



Bookkeeping Division, Harrisburg, Pa.

their routine work. Hearing an employee in his turn and having him reason in regard to what is proposed, settles the rules better in his memory for practice. He will take a keener interest in his work when he finds the pleasure and credit of bearing a part in the discussion and of having his ideas listened to and sometimes approved. This way opens the understanding of our people better than silent obedience to continual dictation. We have a first-class force of employees in the Accounting Department of our combined Companies, and there is a world of opportunity for the individual, and when such



Disbursement Division, New York

opportunities present themselves we must have trained men and women able to take advantage of them.

The continual association of employees and methods brings up the consideration of standards for determining the efficiency of the individual employee, for without standards it is impossible to compare results obtained. At the present time our revenue accounting expense per account or per station, especially that of Salaries and Wages, varies considerably in different parts of our territory. High cost, however, does not mean low efficiency, as there are reasons for a difference when proper consideration is given

**Disbursement
Division,
Philadelphia, Pa.**



to all the known factors in the problem. Some of these factors are: Work involved in the different classes of accounts, such as private branch exchange, message rate, flat rate, etc., number of subscribers having unpaid balances, average salary per employee, proportion of male and female employees, number of Connecting Companies, volume of toll business and condition in which records are received from other Departments. Our records show these different factors or conditions and the revenue expense per account in each Accounting Centre. As standards of performance, however, cannot be evolved from these records, we are trying to develop, by a system of administrative accounting,

routine statements and reports which are necessary for the information of other Departments, but before such reports are requested it ought to be pretty clearly shown that their use will justify the expense of their preparation.

In concluding, I wish to say that the aim of the Accounting Department can be summed up by stating that we are trying to give the best service at the lowest cost; not the lowest cost to the Accounting Department, but to the Company as a whole. We make mistakes, but, as is true in other Departments and in other lines of business, irrespective of the number of safeguards, either mechanical or supervisory, which

**Toll Division,
Pittsburg, Pa.**



a set of practical standards which will reflect the relative efficiency of our individual employees throughout the territory. By using these standards as a basis we feel that we will be able to compare performances in one Division with those in another, thereby determining what the reasonable variation in revenue accounting expense between our several Divisions should be.

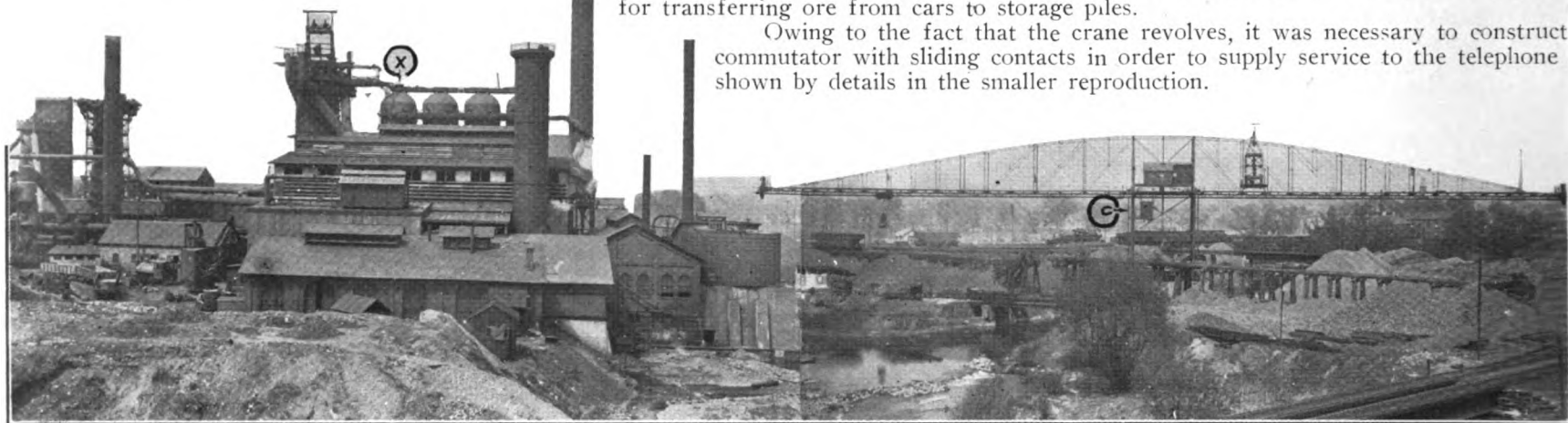
Just a word now about the old subject of co-operation. We feel that our knowledge of the other man's job must be so intelligent and sympathetic that in our daily contact with each other one Department should be willing to do work which may appear to be that of another Department when it can do this work as well and at less cost as a by-product of doing its own. Examples of the application of this principle in our own work may be found in the way in which we receive records from the Traffic and Commercial Departments. For instance, the sorting and rating of tickets and recording of local message usage do not permit of any argument as to whether this is Traffic or Accounting work. The question to be decided is which Department can do it most economically for the Company as a whole. On the other hand, I believe that the Accounting Department should prepare certain

we throw around our work, we cannot eliminate the possibility of error, and mistakes will occur. We are well equipped, however, to handle our work, and are continually striving to enhance its value and reduce the number of errors by improving our methods, and in this work we need assistance from every other Department in the Company, and we are ready and willing to give assistance in return.



Bookkeeping and Toll Divisions, Baltimore, Md.

A Construction and Rearrangement Order



A N order has recently been completed at the plant of the Warwick Iron & Steel Company, Pottstown, Pa., changing a telephone from watchman's shanty on top of No. 1 furnace (point marked "X" on picture) to the revolving crane (point marked "C" on picture). This crane is 574 feet long, has a capacity of 11,000 lbs. and is used for transferring ore from cars to storage piles.

Owing to the fact that the crane revolves, it was necessary to construct a commutator with sliding contacts in order to supply service to the telephone as shown by details in the smaller reproduction.

Philadelphia Division

W. RITCHIE, Division Correspondent

Philadelphia District. The July issue of the *Vim*, printed for the benefit of the sales force of the Curtis Publishing Company—publishers of the *Ladies' Home Journal* and *Saturday Evening Post*—brings to the attention of its representatives the value of the telephone as a sales agent in a brief and forceful article. Headed by a cut of a Bell central office, the idea of celerity and promptness is dwelt upon in connection with the telephone. The "Personal Touch," obtained by the use of the telephone, is recommended, and every salesman is urged to make the most of the comprehensive service always at hand.

A man from Australia recently called at the Central Commercial Office in Philadelphia, intent upon buying several head receivers for use on his return, saying that they would be an innovation in that country, as none are in use there at the present time. He was referred to the Western Electric Company.

The automatic collectors' office space of the Central Commercial Office is being rearranged, greatly improving the interior of the building.

A private branch exchange has been installed in the department store of Hoyt & Sons, 1616 Ridge avenue, through the efforts of Salesman Rosenblatt.

An excellent instance of telephone courtesy was recently noted by an employee of the Company. At 1 o'clock in the morning a subscriber who is troubled with deafness was called on the telephone. The message was of great importance, and as no answer to the call was received in a reasonable length of time, the operator called a neighbor living across the street. When the situation had been explained the neighbor volunteered to arouse the subscriber. This was soon accomplished and the connection established to the ultimate satisfaction of both parties.

Of the many Philadelphia druggists who have had telephone booths built in their show windows, one has had message slips printed, reading:

"There is *no charge* for delivering this message.

"It is a pleasure to serve my customers.

"Three booths—no waiting."

These are distributed to customers, or sent out as memoranda, informing the public of the service which may be expected when dealing with this merchant.

A short time ago a prominent business man

in this city was attacked in his office. During the struggle the telephone was knocked to the floor, releasing the receiver from its hook. The operator answering the call, hearing the cries for help, immediately notified the Electrical Bureau and aid was quickly sent.

A post card which had been left with a prospective subscriber in 1906 was recently returned to the Central Commercial Office with an application for service. DREW.

The Philadelphia Sunday *Ledger* of July 9 contained a full page article in its magazine section on "How Conversation Across a Continent Came About"—i. e., from Philadelphia to Denver. Photographs appear of Emile Berliner, J. J. Carty, C. E. Scribner, I. B. Doolittle, John A. Barrett and also of Dr. Bell as he appeared when opening the first New York-Chicago line.

In Broad Street Station, Philadelphia, the Class C public telephone equipment is located on the train floor. In the main waiting room a two-position board has been required to handle the 11 booths, and in the women's waiting room on the same floor a single-position board provides for the 5 booths.



Detail of Sliding Contacts on Movable Crane

(See description above upper illustration)

Traffic from the larger equipment has increased so rapidly, in spite of the 7 additional stalls placed on the street floor, that another position has been found necessary. The installation of a new three-position sanitary type board was begun and completed in the latter part of June, in a single night—nine hours. Even this unusually good time might have been shortened but for the fact that only fifty-six square feet of space were allotted for the work.

The ultimate capacity of the present equipment is 30 ring-down trunks, 30 card circuits, 40 out-

going trunks and 3 call circuits. The present equipment is 9 ring-down trunks, 15 tandem trunks, 1 toll recording call circuit, 2 tandem call circuits.

Increased traffic necessitated also the change of the No. 96 type one-position board in the offices of the Land Title and Trust Company, Broad and Chestnut Streets, Philadelphia, to a Standard No. 4 type two-position switchboard.

This work, done in June, required one night and service was not interrupted. The space measured only 7 x 31 feet.

The present equipment is 43 lines, 8 trunks and 20 card circuits, and the ultimate is 200 lines, 30 trunks and 30 card circuits.

The Plant Department, Main Line District, has formed a base ball team. In four games it has defeated its opponents with these scores:

Western Electric Co., Phila. 14-8.

Plant, 406 Market St., Phila. 26-8.

Rosemont, Pa., Athletic Asso. 10-3.

Plant, Central District, Phila. 10-7.

S. C. Price, the manager, Rosemont, Pa., would be glad to receive a challenge from any of the Company's teams.

Recent new applications received for Short Period Private Wire Service are Billington, Hutchinson & Company, No. 425 Walnut Street, Philadelphia, Insurance Brokers, who have arranged for two 15-minute periods to New York, and the Crocker-Wheeler Company, also of Philadelphia, which has taken the Private Wire Service twice daily to their works at Ampere, N. J.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Doylestown District. The rural telephone company which operates in Bedminster and Tinicum Township, Bucks County, expects soon to extend its lines to Fretz Valley, Keeler's Church, Keelersville and Hagersville. This company connects with our lines at Sellersville, Pa. HENNESSY.

Trenton District. The Supervising Salesman in the Trenton District, after making repeated efforts, has finally succeeded in changing a non-standard contract covering a branch exchange with one trunk and three stations to a branch exchange with two trunks and three stations. This superseding is very gratifying in view of the fact that we have been soliciting the subscriber for several years to take service in accordance with our standard schedule. GARWOOD.



The Westminster, Md., Telephone Building Before and After Alterations were Made. The Colonial Design is Well Preserved



Part of New No. 9 Switchboard—
3 Positions, 200 Local and 30
Rural Lines. (Ultimate 9
Positions, 800 Lines)

New Westminster Building

On May 10 our new common battery central office at Westminster, Md., was put into service, replacing the former magneto system. The old central office was in leased quarters and a small shed was used for a wire room. Some time ago it was decided to purchase and equip a three-story brick building which had formerly been used as a residence and a tin shop. The building is located on Main Street, near the centre of the town and adjacent to the attractive new Firemen's Building and Town Hall. Our building, as seen in the first illustration, like many of other buildings in an old town, looked rather



Baltimore Division

J. R. MOFFETT, Division Correspondent

Annapolis District. A traveling salesman for the American Tobacco Company, while in Annapolis, had to call his firm in Baltimore about some business; he placed the call with the toll operator and received his connection immediately. He was so pleased with the prompt attention that he called the operator and thanked her for the quick connection. He did not feel quite satisfied with this, however, so he sent her a large box of candy.

A fire started in R. G. Chaney's livery stable, 159 West Street, Annapolis, June 23, at 12 o'clock, and burned 52 horses and several buildings. It also destroyed two 50-pair cables, 6 pairs of open wires, together with trunks to West River, Washington and Prince Frederick. The open wires were reconnected and working at 5 A. M. the next day. The Plant Supervisor was called at 3 A. M., after the fire was under control, and splicers with necessary material arrived on the first train from Baltimore. The first 50-pair cable was working at 10.30 A. M. and the second at 3 P. M. This work was completed under difficulties, as the fire was still burning and the splicers had to stop and cover up open cable to let firemen throw water on the near buildings.

CLEMON.

Havre de Grace District. A blind and elderly subscriber on one of our recently completed rural lines wanted to know whether any harm could be done to his telephone if he left the receiver hanging at the full length of the cord. Upon being asked why he wished to do this he said, "I did not think it would hurt it so I moved my couch from the window and placed the head of it under the 'phone,' so by letting the thing hang down I can hear my 'phone' talk while I lie down!"

GERBER.

A Well Taken Point

A subscriber of The Pacific Telephone Company, named Woodbridge, in commenting on the misspelling of his name on long-distance tickets, wrote to the Manager as follows:

"I have gracefully paid bills charged to Woolbridge, Woolridge, Woodhige, Woodberry, Woodruff, Woolhedge, Woodhedge, Wallbridge, Wellbridge, Uhlbridge, Woodhouse, but this is the first time that I have had to knuckle down to the name of 'Bood-blake.'"

Many Corporations Emphasize Importance of Small Savings

The Chicago, Rock Island & Pacific Railway Company and the Chicago, Burlington & Quincy Railroad Company are two of the railroad companies which have most recently taken up the importance of small savings. The former, in the 80-page monthly magazine issued in behalf of its more than 40,000 employees, devotes a full page adjoining the frontispiece to an article called "A Nickel a Day."

You are one of about fifty thousand employees on the Rock Island lines.

Can you save *five cents a day* for the company? That is only \$1.50 a month.

A few spikes, bolts, etc., saved, or not replacing material until full use has been obtained, will turn the trick for track men.

Train and yard crews watching every move and not wasting time will do their share.

Enginemen can easily use a few less shovelful of coal and make a better showing.

Station and telegraph employees, by being prompt on the wires and careful handling of freight, will save delay to trains and reduce claims.

Officemen can reduce unnecessary wires and correspondence, saving stationery and postage.

Shopmen have many ways of saving time and materials.

Everyone can help, and some can help others.

A small saving by each employee spells Prosperity.

Prosperity hires more men and pays better wages than Hard Times.

The President of the C., B. & Q. above mentioned addressed a letter to a large number of

dilapidated with its old style wooden shutters, untrimmed vines and lack of paint. In the rear there were two porches somewhat the worse for age and want of care.

The transformation that has been made in its entire appearance speaks well for the Company's men who had charge of it, and the residents of the town have repeatedly complimented our local representative upon the decided improvement.

On the first floor the Commercial Department has the well-lighted room to the right and the terminal room is at the left. The heating plant is in the room to the rear of the Commercial office occupying the only other room on the street level. On the second floor the operating room is above the terminal room and the operator's quarters are above the Commercial offices and the furnace room. No use is now made of the third floor of the building nor of two rooms at the rear of the second floor. The back yard is on a level with the second floor of the front of the building; the old porches have been removed to lessen the fire risk and the yard looks very pretty with its fruit trees, rose bushes, lillies and other flowers. At the rear of the lot and adjacent to the alley there is a large, well-built wareroom which was on the property when purchased. Altogether the surroundings make it very pleasant for the employees and the people of the town are pleased with its appearance as well as with the common battery service which they greatly appreciate.

that company's 44,000 employees, requesting careful expenditure of time and material in order to "overcome many of the disadvantages with which the company is now confronted in the way of increased cost of material and increased pay-roll."

Pittsburg Division**L. W. GRISWOLD, Division Correspondent**

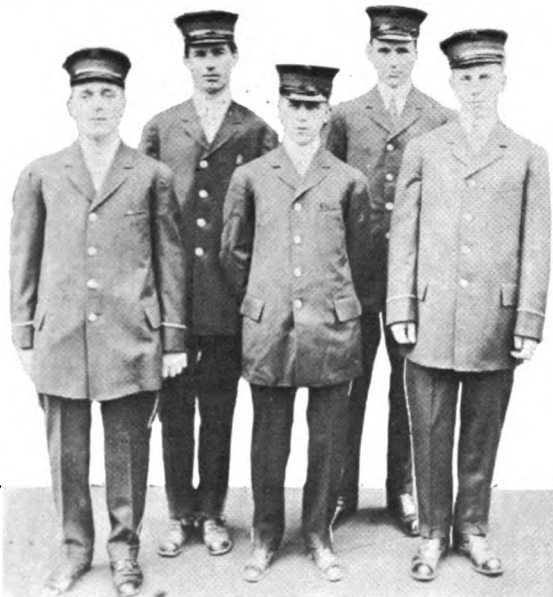
Pittsburg District. The other afternoon an unusually diminutive messenger boy appeared at the Seventh Avenue Building with a telegram addressed to Capt. F. G. Miller,

Signal Corps,

N. G. of Penna.,

305 Bell Telephone Co.

This messenger had covered a great deal of territory in endeavoring to find the person to whom the dispatch was addressed. He had visited the Plant Department in the Fulton Building and the Opposition Telephone Company. Then he telephoned and asked for No. 305 on our private branch exchange, but without success. The boy had been passed from one place to another without getting the slightest clue to Capt. Miller's identity, and was about exhausted when he landed in the Seventh Avenue Building. He tried at Room 305 and then in one of the halls met an employee who also became interested. The Division Auditor of Receipts was visited and the pay roll consulted, but Captain Miller was not listed. Then the last step, which should have been taken first, was made. Upon the suggestion of an employee the Bell directory was consulted. F. G. Miller was found listed as a Hiland subscriber. A call was made to that number and the person who answered said that the head of the house was a captain in the signal corps. When the messenger heard the reply his little face beamed, and he said: "I'm going right back to the Postal and put all the kids wise to that Bell book."



There are at present about 3,700 Bell automatic public telephones in the Pittsburg District. Collections are made at equal intervals by the collection force. It has been found necessary to visit ten of the stations every day, 300 once a week and about 2,000 twice a month. Monthly visits are necessary in the case of 390 of the stations. The force which makes about 7,000 calls a month consists of Philip Kleist, L. W. Seth, George Weis, D. T. Burns and Earl Roberts.

Out in the eastern end of Allegheny county there is a coal mine in which the traction power is of two kinds—electric and mule. Cars pulled by motor or mule move over the same rails without trouble except under certain circumstances. These exceptions gave Jeremiah O'Rourke, the mule tender, numerous qualms until the day on which he chanced to discover a Western Electric catalogue. Of course, a well-trained and ship-

shape mule will trudge along the narrow gauge with the space between his ear tips at a maximum. But the poorly trained mule will flap his ears, hit the trolley-wire and go down in a heap. Sometimes the poorly-trained mule fails to rise; at other times he takes the shock with true mule-like calmness. Now, since Jeremiah O'Rourke has seen the catalogue from our nearest house all of this is changed. For this same Jeremiah ordered and received a dozen rolls of olive green friction tape and now has a supply bound about each mule ear under his supervision. Jeremiah said that the olive green tape is valuable in forty ways, three of which he deigned to mention:

"It stands for my own country," said he. "It lets the little dears wiggle their ears without fear or favor, and lastly, any inebriate who gets a sight of bay mules with green ears doesn't loiter around our diggings for so very long."

On June 10 the Millvale equipment was successfully cut over from magneto to common battery. The new board is a No. 10 and serves about 250 subscribers in a thriving borough just north of what was formerly known as the city of Allegheny.

Butler District. The switchboard and telephones for the private branch exchange system of the St. James Hotel, Bradford, Pa., arrived June 20. The Local Manager, upon learning that a few days would elapse before the switchboard cable and other material could be delivered, took advantage of the opportunity for advertising by making the window display shown in the accompanying illustration.

The installation of two additional switchboard positions has just been completed in the Butler central office.

WARRICK.

Greensburg District. The Brush Valley and Mechanicsburg Telephone Company has installed one of the Western Electric Company's No. 1800 switchboards, with self-restoring drops. This connecting company has built about 16 miles of pole line and will give rural line service to at least 40 farmers in Indiana county.

Storms in and around Greensburg, on two consecutive days, caused over 180 cases of trouble, all of which were cleared within a twenty-four hour period. A peculiar feature of this trouble was that practically all the trouble is on our own rural lines, while our Plan "A" companies escaped.

The Mt. Pleasant Farmers Telephone Company connected with our Mt. Pleasant exchange is extending its lines three miles to furnish service to eight farmers, in a territory now without telephone service. Copper wire is being used.

On July 1 the Commercial Department moved its business office in Johnstown. The new quarters are located on the ground floor of a building which has been remodeled for the Telephone Company. A plate glass front has been put in the building and grill work, counters and windows installed for the use of collectors and other commercial representatives.

HUGUS.

New Castle District. Local Manager McCune, of Rochester, Pa., has obtained an application from the Armstrong Cork Company, Beaver Falls, Pa., for a No. 1 private branch exchange service with two trunks and 10 stations.

Manager Knott and District Salesman H. J. Sarver, of Erie, Pa., closed two Plan "A" contracts during the early part of the month. The Raymond Telephone Company, located north of Corry, Pa., will start with eight subscribers and connect with Bell lines through the Corry central office and the Station Road Telephone Company, of Harbor Creek, will have 14 stations and connect with our lines at Erie.



Hotel Equipment Display in Tailor's Window at Bradford, Pa. [See Butler District News]

A salesman at New Castle recently had the following experience with a prospective subscriber: The employee called on a man who was elderly and obliged to wear spectacles. After an explanation the man agreed to sign an application. When about to read it he discovered that he had left his spectacles at his son's house some distance away. Not wishing to make a special trip he asked the salesman to call the next day, but the Bell man offered the loan of his glasses. The old man accepted the offer and after placing them on his nose looked over the printed form and remarked that the glasses were better than his own. This so elated the prospect that he immediately signed for a telephone in his business office as well as one for his residence.

HARPER.

Uniontown District. D. J. Murphy, District Manager at Uniontown, acted as press agent and business manager for "Miss Mistaken," a musical comedy given by local amateurs to two crowded and enthusiastic audiences on June 23 and 24. J. A. Collette, Traffic Inspector, one of the most experienced amateurs in Uniontown, carried off the chief male honors as "M. Mesange, proprietor of the Hotel Arcadian."

The Dughill Telephone Company, near Morgantown, W. Va., has signed a Plan "A" contract. This means seven more Bell and five less opposition stations.

Geo. C. Holcomb, of Connellsville, Pa., a traveling salesman, employed by the J. C. Jenkins wholesale grocery concern in Pittsburg, has had a supply of stickers printed bearing the following information:

MY TELEPHONE NUMBER IS

BELL 185

CONNELLVILLE, PA.

GEORGE C. HOLCOMB

These are stuck on calendars, telephone directories and packing boxes to remind the customers that the salesman may be reached in an instant.

CAHOON.

Transposition Club

On June 20 the Transposition Club held its last meeting of the season and elected officers as follows: President, G. A. Geddes; Vice-President, S. B. Ridge; Secretary-Treasurer, J. M. Griffith. The Governing Board is made up of the following members: Z. C. Gillespie, J. H. Clune, D. Hester and G. S. Reinoehl.

Meetings of the club will be resumed in September.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

AUGUST 1, 1911

NO. 15



THE SHIP-BUILDER and the TELEPHONE

The Launching of the "Wyoming." Uncle Sam's Newest 26,000 Ton Dreadnaught is Shown at the Moment of Her Initial Plunge into the Delaware River. A Number of Distinguished Civil and Naval Officials Witnessed the Ceremony Late this Spring at Cramp's Shipyard, Philadelphia. Telephonic and Telegraphic News of Its Success was Immediately Transmitted to all Parts of the Country.

An Afternoon at Cramp's Shipyard, Philadelphia

"HERE is a telephone man who wants to know how to build a ship. Can you show him in two or three hours?"

Thus an official of the Cramp Ship Building Company of Philadelphia introduced a representative of THE TELEPHONE NEWS to an assistant whom he had summoned from an outer office. The assistant permitted himself a smile.

"Well, I may have to skip a few points, but I think I can show him something interesting in that time."

That is the way it started. We left the official's office, crossed the street, passed through a wooden barrier and stood in the midst of a modern ship building establishment.

"This is what we call our main shipyard," my guide remarked.

"Your main shipyard?" I said. "How many have you?"

"Oh," he answered, "we have several, the upper yard, the main yard and the Kensington yard, several blocks south of this place.

Now, is there anything you are especially interested in?"

"I'm interested in all of it—and especially in telephones as you use them here. Let's begin right here and see just as much as we can. What do you call that big cross-shaped machine that is moving back and forth up here over our heads?"

"That is a cantilever crane," was the answer. "We have a number of them. They can lift a mass of steel weighing 50 tons just as easily as you can pick up that hunk of metal there at your foot."

I tried it. It wouldn't budge. My guide laughed and I felt silly.

"Heavier than it looks, isn't it? Well, it's a solid piece of armour plate—the kind they put on the largest warships built here or anywhere. I couldn't lift it myself, so don't mind."

After that I was prepared for surprises. They came thick and fast. We were now picking our way over railway tracks and in and around masses of jagged timber towards the edge of the Delaware. Here and there

through the establishment telephones peeped out at us from the most unexpected nooks and corners. One could see that they were put to frequent use in the regular routine of the day.

"What are these big timbers for?" A great double row of heavy sticks they were, stuck into the ground to form a V-shaped sort of frame work that ran down to the river's edge.

"Those are stocks. The blocks that you see in the middle are the ways. You have heard of a ship 'sliding down the ways?' You see, the vessels are built right inside of the stocks, resting on the ways, and they stay there until the last support is pulled out at the launching—and the boat slips into the water."

By this time we stood half way out on a jutting wharf. Above us towered a Fall River steamer, dazzling white in a brand new dress of paint.

"Do you want to take a look inside?" inquired my guide.

I was only too glad of the chance.

"This is the Old Colony, a Fall River excursion boat that we have been remodeling,"

(Continued on page 4)

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



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F. L. SPALDING, Second Vice-President and General Manager
W. S. PEIRSON, Secretary
WALTER BROWN, General Auditor
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J. C. NOWELL, Plant Manager

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N. HAYWARD, Chief Engineer

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to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - - - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII AUGUST 1, 1911 No. 15

Now or Never

WE are indebted to a recent folder publication for the accompanying chart which presents some very interesting data as to the age in which man succeeds or fails in establishing a financial footing.

No figures are furnished to substantiate the data which is presented—but it may be assumed that care and accuracy have been exercised in its computation. It is probable that the average reader will review this diagram with some misgivings; either he will discredit the information that is placed before him, or will consider himself outside the class of average man. The *now or never* period, between the ages of 30 and 50, is here shown to represent man's accumulating period, in which either success or failure is settled—and inasmuch as the majority of our employees are now in this period, it may be permitted us to add, not a word of warning, but one of encouragement.

To an official of this Company is credited the expression that "no employee within the fold of corporation employment should rest satisfied until he or she has acquired a holding, be it ever so small, of the stock of that corporation." This does not mean that speculation, as the word is commonly used, is wholesome or proper. The popular magazines are favoring us with much free advice of a good and sound nature on the dangers of such a course. But it does mean that investment of a man's savings in the stock of the Company which employs him is to be not only countenanced but encouraged.

Perhaps all of us in this *now or never*, this accumulating period, feel that our ultimate financial footing is secured, and that we shall have attained this goal long before the *danger line* has been reached. But as we look around us and note the petty speculation of some of our fellows and observe how unsound are their methods of establishing and multiplying a savings fund, we cannot but feel that the advice before noted is thoroughly sound and worthy of consideration and adoption.

For all of us the danger line is fast approaching, and undoubtedly all of us are "tucking away" a weekly or monthly mite against the proverbial rainy-day. It is probable that all of us, as we see our savings accumulate, experience at some time or other the desire to indulge in stock or bond investments that will promise a greater return on our money than the banks may afford us. And inasmuch as we are investing our time and our labors and our brains in the Bell System, why not our savings?

Perhaps to the average employee the buying of A. T. & T. Co. bonds sounds like a far cry. Perhaps to the majority of us it comes as a suggestion which should be pigeon-holed for a later date when our personal affairs savor more of prosperity. However, let us not file it away for automatic release, but rather give it quite as much thought as the present American League race, for it's a question of real importance. And if anyone feels that now is the time—"get busy."

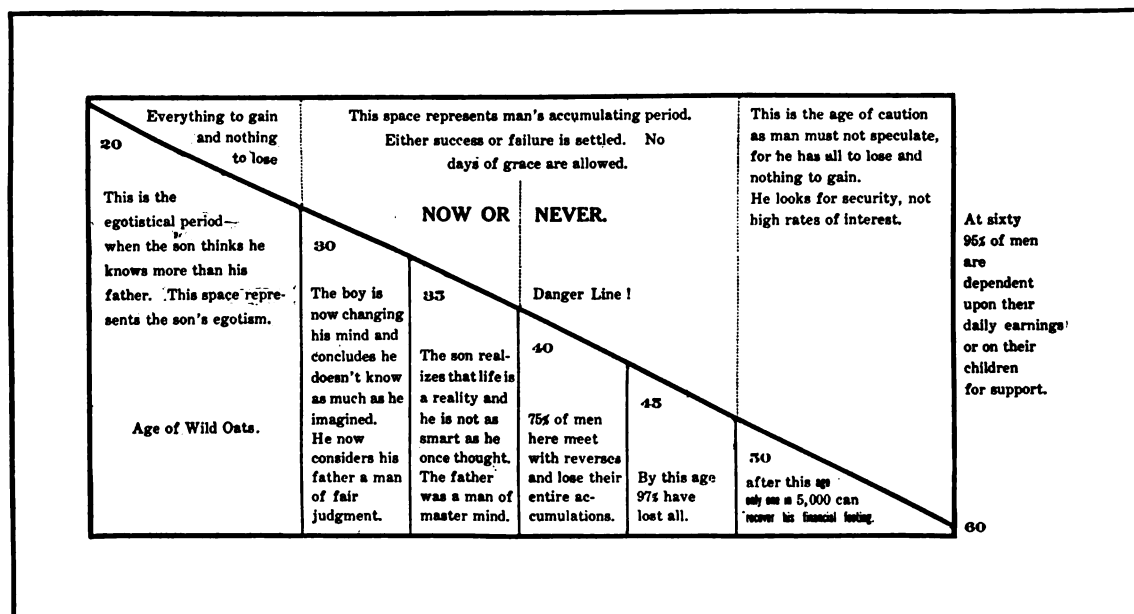
Another Phase

ANOTHER opportunity for co-operation presents itself. In the April 15, 1911, issue of THE TELEPHONE NEWS we appealed to our employees to practice, and to urge others to practice, the habit of purchasing by telephone. May we carry the suggestion one step further?

Practically all of us have occasion, at times, to refer to one or more of our directories. In the combined territory, extending from Scranton to Cape Charles and from Wheeling to Atlantic City, we now publish forty-five large and small telephone directories. In several of these there are advertisers numbering in the hundreds, all of whom are meeting with more or less success.

As we from time to time purchase by telephone why may we not consider these advertisers? As a rule, they are as prominent as any others in their respective lines of business and as ninety-nine per cent. of them are telephone service subscribers that fact makes it easy to deal with them. Granting that their goods and services are as good as any others, why may we not refer to the list and purchase from them? We will then be following a plan to which many smaller companies owe their success during struggles for existence. Through the good feeling won from their customers as a result of their employees' reciprocity purchasing, substantial and permanent accounts have been gained.

The Ages of Man—A Diagram



COMPETITION

Excerpts from a Paper Read Before The Philadelphia Telephone Society, June 5, 1911,
by M. H. Buehler, Auditor

President Vail, in his annual report for 1910, says: "Competition means that the same thing or a satisfactory substitute is offered. In this sense there can be no competing exchanges, unless each exchange has the same list of subscribers, which is inconceivable."

So that it is not of competing exchanges that we would talk to-night, but of the coming contest between the now forming large operating Bell units into which the United States will be eventually divided, a form of competition which will not be affected by the recent decision of the United States Supreme Court, regardless of the question whether or not it was the intent of Congress in enacting the Sherman Anti-Trust Act that "restraint of trade" should be interpreted in the light of reason, and therefore must be considered as meaning "unreasonable restraint." The competition to which we refer would tend to develop trade along the broadest possible lines consistent with economic management and good service—our aim being the highest development at the lowest cost to the consumer, having in view the permanent continuance of the business.

If we may judge from the developments of the recent past, the country will be divided into a number of operating divisions, each covering a large area of territory, serving millions of people and having the care and responsibility for the proper and economical handling of an extended and costly property.

Each division will no doubt be so made up as to include its fair proportion of both urban and country territory; each will be financed from the same source; each will have the same style of equipment, and the best-known methods of operation, construction and maintenance will be available to all, so that we may say the question of supremacy will largely depend on the personnel of the organization.

To equip these units there is to select from a large number of loyal, active, energetic men, who have been well trained in the profession, and we may take it for granted, the personnel of each will be of the highest ability, and that the future contest will be most keen and interesting.

The question which should be uppermost in our minds is, how is The Bell Telephone Company of Pennsylvania and Associated Companies equipped for this contest, and what position shall we occupy? We should be satisfied with none other than first place, and if we do not attain this, we need not look beyond our own territory for the reason of our failure.

What reasons have we for entertaining such a hope?

In any contest a good start is to be desired, and in this respect we have a decided advantage over all others, in that our division was the first to be conceived, and we have had the opportunity of getting our organization completed and in good working order before the other divisions were formed.

If there is any advantage in location, then here, too, we may consider ourselves favored, being located in the East, where the population is more dense, where the telephone was

first introduced, where the people have been the most thoroughly educated in its use, and where the service should be, if it is not, more highly appreciated than in any other section of the country.

Our location and conditions are such that our investment, operating, maintenance and other costs should compare favorably with those of any other locality.

Then, too, we have that greatest of all assets of a corporation, one that can not be measured by any known standard, an army of nearly fourteen thousand loyal, interested, painstaking women and men, upon whose efforts will depend the outcome of this contest, and whose interest in the welfare and upbuilding of the Companies is such that we believe this alone is sufficiently great to outweigh any advantages which any other division might possibly possess.

Our aim should be for such results as will enable us to render the highest grade of service at a minimum of cost, consistent with the proper upkeep of our plant and its ultimate replacement; fair compensation to our employees and a reasonable return to our stockholders on the money which has been invested in the business.

It has always been our claim that two exchanges attempting to serve the same community result in confusion, unsatisfactory conditions to both the public and the corporations, and can not be justified from an economic standpoint, so that if we wish to maintain this position, it is doubly incumbent upon us to see that each community is served to the best of its requirements, and that the cost of the service is as low as is consistent with the permanent continuance of the plant and service.

The true employee, whether or not acknowledged as such, is as much a partner in the business as the stockholder. His interest in the business is as sincere as though ownership were vested in him. Corporate waste and extravagance will not be tolerated by him. Economies will be looked for and welcomed, and certainly no one can justly deny to such employee the right to a share in the corporation's prosperity.

To keep our balance wheel, which is the percentage of expense to revenue, in adjustment, is a task requiring time and diplomacy. A comparison of our accounts for a period in any given year with the same period in another will indicate just how closely we are keeping this wheel in adjustment. Operation expense must bear its proper relation to the total telephone expense. A difference of even two or three units in the percentage relation involves thousands of dollars on one or the other side of the point aimed at.

Our gain in stations shows a healthy growth. The percentage of telephone revenue to average plant in service has continued to increase, while the total plant cost per station has been decreasing.

Whenever the balance wheel may show a tendency to become out of adjustment we know that we have an organization capable of fitting itself to the conditions.

If in this competition to which we have referred, this group of companies is to hold the highest position, it will not be the result of the work of any one man, but it will be the outcome of the joint efforts of all of us.

We must be loyal, and economy and efficiency must be the watchwords.

To be thoroughly loyal we must have the highest respect for the ability and confidence in the honesty and sincerity of our superiors, and the character of the men occupying our

executive and official positions is such that there can be no excuse for disloyalty.

Just a word here as to the responsibilities of these executives and of all other employees occupying a supervisory capacity.

Every one of us, regardless of his position, exerts an influence to a greater or less degree upon those with whom he comes in contact, and especially upon those who are under his direction, and it depends upon his character and reputation as to whether or not that influence works for the good or ill of the Company and of the individual.

The character of a foreman is reflected in the men of his gang and evinces itself in the quantity and quality of the work done under his supervision, and is also noted in the personnel of the gang.

The work in the operating room will largely depend upon the character and influence of the supervising operators.

This responsibility increases as our prominence or position in the company advances, and as the number of our subordinates, both direct and indirect, increases.

The President and Vice-Presidents exert a more or less direct influence over every employee of the company.

It was said of Napoleon that his presence at the head of his troops at a critical moment was equivalent to 20,000 reinforcements, so great was their love and confidence in their leader, and the character of the corporation official should also be such as to command the highest possible respect from his subordinates and to inspire them with the utmost confidence in his judgment and fair dealing.

The magazines and daily papers have devoted much space during the past year to articles on corporate economies and efficiency, and, while we do not for one moment believe that we have attained anything near the maximum of our possible ultimate in either respect, we feel quite certain that we are not subject to the same harsh criticism to which other public service corporations have been subjected.

To-day we have an investment of approximately \$75,000,000; 14,000 employees; we operate nearly 600,000 stations and maintain 20,000 miles of pole line and 1,400,000 miles of aerial and underground wire, and in five years or less our plant will represent an investment of \$100,000,000, with 1,000,000 stations and operated by at least 20,000 men and women. Consider the opportunity in this rapid growth alone for reduced unit costs and then add to this the result of economic methods of operation. Do these not justify our expectations for the future?

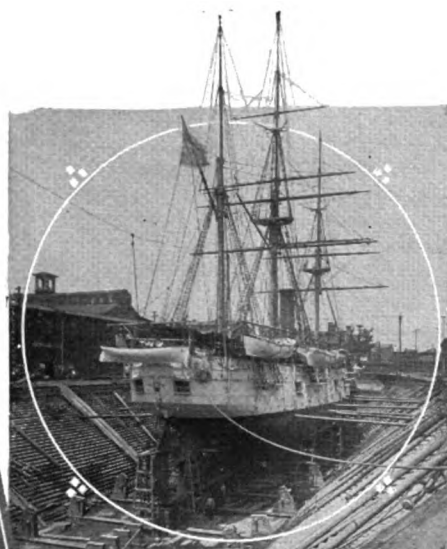
"Enthusiasm is just plain brain juice, squeezed out and reduced to its highest action power. And the harder the squeezing the greater the Enthusiasm-Squeeze."

Now what of the prospects of the individual as the result of these consolidations and large operating units?

With the growth of the country, business is of necessity drifting from the individual to the corporate form, and from the corporations capitalized for a few hundred thousand dollars or a \$1,000,000, to the trusts with their hundreds of millions of dollars, and not infrequently do we hear that the day of individual effort is passed, that the man with limited capital has little or no opportunity. In a measure this may be true, but a man's greatest asset is not his money, but the energy and ability which he possesses, and certainly the corporation of to-day affords a much greater opportunity to

Views in Cramp's "Lower" Yard. Here Most of the Repair Work is Done. Telephones, Conveniently Located, Keep the Company's Officials Constantly Informed of Operations at this Point.

Upper Picture Shows Pennsylvania Schoolship "Adams" in Dry Dock.

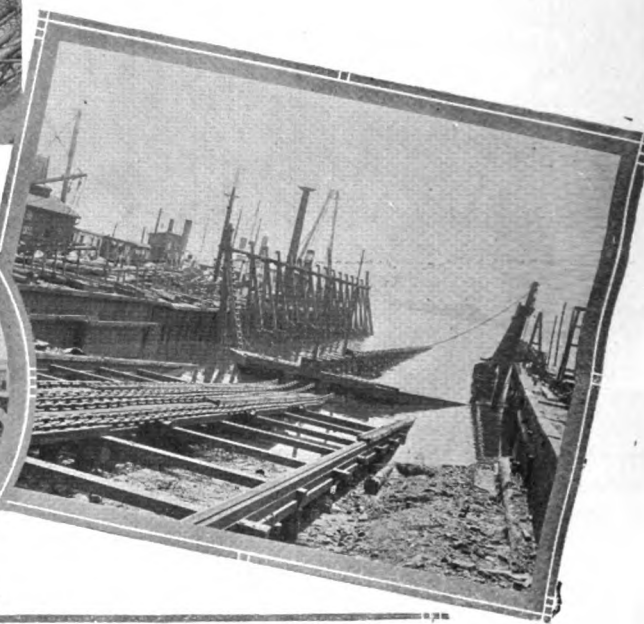
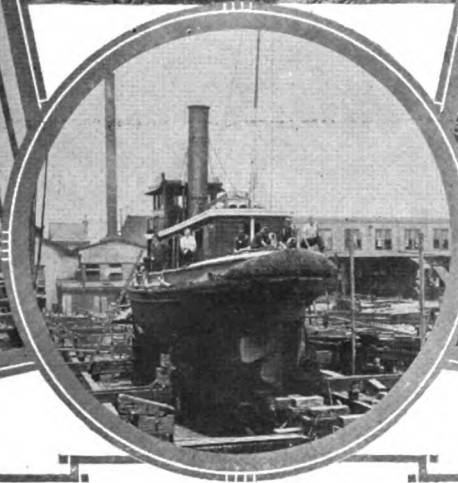
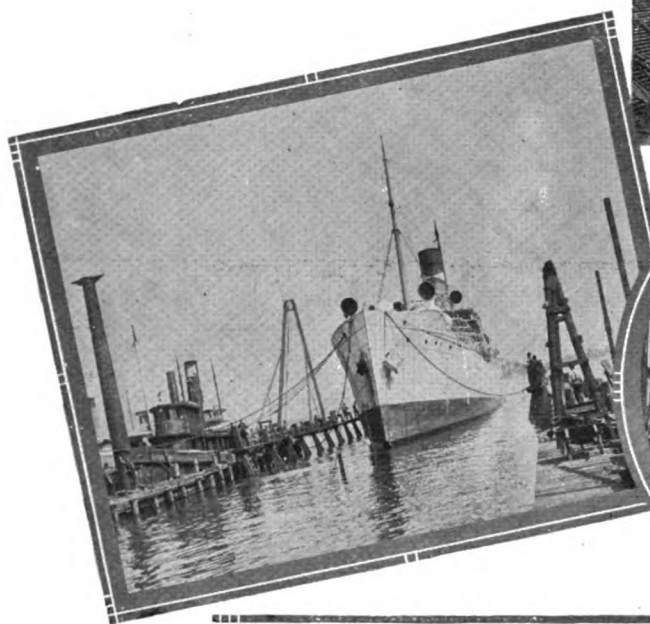


Lower, Left to Right:

1. Cramp's Wonderful Marine Railway at Work—a Large Fruit Steamship Being Hauled Up for Inspection.

2. A Tugboat, High and Dry on a Smaller Railway.

3. The Larger Marine Railway as It Looks When Not in Use. (Note the Single Track which Slips Under the Vessels' Keels.)



The Ship-Builder and the Telephone

(Continued from Page 1.)

he explained as we climbed the gangway. Inside the vessel the scene was animated.

"They're rushing things night and day to finish up this job. By to-morrow this time she'll be finished and steaming up to New York. Looks like a beehive, doesn't it?"

It did. A small army of artisans were at work. Painters clambered high on trestles and ladders, putting the final touches on the interior woodwork. Electricians were making tests and adjustments, flashing the lights on and off in bewildering array. Carpet layers by the dozen were down on their knees with racing hammers, making the last spurt to get the floor coverings in place. A steady stream of workmen loaded with stateroom furniture crowded the passage ways. Several workers were standing at wall telephone sets, trying to make their voices heard above the noise. Bells were buzzing, indicators flashing—everywhere we went. They were making a hard try to get the big white ship ready on time.

"Will they make it?" I said.

"Oh, yes; they will have her finished by sailing time to-morrow if they have to double the force of men and work them right up to the last minute."

We seemed to be in the way in such a crowded, bustling place, and I was as glad to get out—decorated with a generous splash of fresh white paint—as I was to get in. It was a relief to breathe the open air on the wharf.

As we rounded the bow of the Old Colony a half-finished steel vessel in a maze of stocks came into view.

"Why, you've some more boats building at present!"

"Yes, a few. That's a Cuban cruiser. On the other side of her is the United States submarine Thrasher, and beyond that the torpedo boat destroyer Beale and another Cuban gunboat—all of them in stocks, getting ready for their launching. You may be interested to know that there's a telephone in every ship we put together—just as soon as we can find a place for it."

It was inspiring, though ear-splitting. As we neared the vessels the automatic riveters and drills were going full tilt and making an unearthly din. We circled each vessel in turn, my guide stopping now and then to shout an enlightening word or two in my ear.

Finally another vessel appeared, an enormous unwieldy-looking shape of dull red steel floating broadside to the land.

"The Wyoming," shouted my guide. "Do you want to go aboard?"

I did, indeed.

We climbed a gangway that seemed as high as a mountain and as steep, and stepped into one of the lower decks of Uncle Sam's newest dreadnaught, a 26,000-ton floating fighting machine. Everything was in the raw and everything was painted the same dull red color.

"Why?" I asked, referring to the shade of paint? I had thought to find it gray, white—any color but red.

"That is just a coating of red lead—it is more of a preservative than anything else. Watch out!"

It was too late. I had backed into the side of a turret. The paint was nearly dry. But I was getting used to surprises, and we both had a laugh at my expense.

Then we started climbing upward, over shaky ladders, stopping a moment to peer down into the depth of one of the main turrets in which a great circular machine was at work.

It was a smoothing device, my guide explained, a tool as big as the turret itself. Slowly and by jerks it revolved, biting off tiny curls of steel from tracks on which, later, the great 13-inch gun carriages would rest.

Still higher we went. At last there was but one more climb to make. There didn't seem to be a ladder to help us out. My friend brought forth a spindly little trestle and placed it beneath the opening. He mounted it, leaped, caught the edge of the deck and drew himself up. I passed him the camera. It was up to me to get beside him. The first try was a fizzle. Only one hand caught the deck; I hung there a moment, then dropped.

"Take it easy—try again," yelled my tutor.

The second trial was more successful, and in a moment I stood by his side on the Wyoming's topmost deck—the captain's bridge. A gale seemed to be blowing up there. We had to be careful where we stepped. Great holes in the deck yawned on every side. Below stood massive metal parts, and here and there white-hot rivets punctuated the steel flooring. A fall was decidedly to be avoided.

But it was a wonderful sight. The workmen below looked like so many legless dwarfs, scampering mysteriously here and there about their several tasks, some hauling on lines; others manipulating the ever-present, always-clacking riveters—still others waved their arms in frantic signals to subordinates.

"It seems to me you'd need a few telephones on a ship of this size," I suggested.

"A ship of this size has a good many telephones," came the quick answer. "As I said before, there is at least one telephone on every boat we build just as soon as there is a place to set it. Every United States vessel is connected in this way with the officials at Washington. The engineers in charge of the work find it mighty convenient to be able to call up

their chiefs down there whenever something puzzling comes up. And then, you see, they're in instant touch with every department here.

"Every warship has three distinct telephone systems—a general system, another for the engine and fire rooms and a third called the 'fire control' system. The general system corresponds to the telephones in the various rooms of a big hotel. It is simply for the convenience of the crew and officers. Connections are made at a small switchboard. It usually has about 60 stations. The system in the engine and fire rooms is quite small, simply a combination of four or five stations, so that the engineers and their assistants can talk with each other without leaving their rooms. But the fire control system is the largest and most interesting of the three. As many as 20 receivers are connected on one circuit with but one transmitter, and that is worn by the captain of the gun crew. He may be stationed some distance from his gunners in their turret, but each of them, as he walks around the gun deck, wears a head receiver, and no matter how great the confusion, he hears every order that is transmitted. When the ships are in action you can imagine how valuable this kind of equipment would be."

We turned towards the Company's plant, spread out in lengthy panorama before us. Boats, engines, derricks—all the paraphernalia of the wonderful place lay in full sight. As we looked, one of the cantilevers crept out toward our perch, bearing, like a toy, a huge mass of plate for one of the decks below us. Its two arms seemed to be outstretched, as if about to close on us. Finally it came so close that we were able to talk with the operator, almost close enough to jump the intervening space. Then, its burden deposited, it rolled majestically back for another.

It was a sight that one could not soon forget. With the wind flapping our clothing, we held down the tripod of the camera and took a photograph of it before we descended.

Just how we got down I don't exactly remember. But it must have been something of a job, for when we reached the wharf we both sat down and wiped our streaming faces—and I, at least, made an effort to forget a

nervous strain that threatened to take from the pleasure of the tour.

"Some climb," was the laconic remark my friend vouchsafed. I heartily agreed.

"Look!" he exclaimed a moment later. I looked.

"What is it?" I asked in amazement. A huge floating giant, not at all like a ship—more like a lighthouse—with two arms somewhat like those of the cantilever cranes, was approaching.

"That's the Atlas," my guide answered.

"The Atlas? That's a good name for it," I said. It was Cramp's wonderful floating derrick, a tug lashed to its side, slowly rounding the bow of the Wyoming with a burden of steel from another part of the yards.

"It can pick up a weight of 100 tons and carry it anywhere along the river," was the further explanation. "Runs by steam; the engine is deep down in the inside. It's one of the biggest things of the kind in the world."

It surely was an impressive object. A hurried adjusting of the camera and we had another memento of our sight-seeing trip.

Then we retraced our course to one of the larger shops that stand in a row several hundred yards back from the river.

"This is the Morris machine shop," my guide said as we entered.

"Why Morris?" I asked.

"Well, I guess I'll have to give you a little ancient history to explain that," he answered. "Away back in the beginning of the last century—about 1828—William Cramp and Levi Morris were business neighbors; that is, each of them had started a small business in this neighborhood. Mr. Morris had set up his machine shop in 1828, and a couple of years later Mr. Cramp laid the foundation of the plant that you are seeing to-day. Sixty odd years later the two businesses found that it would be more profitable to work under one management. So they combined. Since 1891 the Morris Company has been part and parcel of the Cramp Ship Building Company. It is now regarded as one of our departments, a department in which some of the best machine building in the country has been done—and is

still being done. That is why we know this shop as the Morris machine shop."

A rather brief inspection sufficed for this building, and, after we had peered around enough for me to make sure this department had its telephone service, we crossed the street to a much larger and more attractive building, which housed the Cramp machine shop forces.

It is a splendidly equipped establishment, apparently modern in every respect. One thing that was especially noticeable was the array of immense steam turbine parts scattered about the floor.

"That is one of the most interesting things we are doing just now," said the guide, pointing to one of the huge rotors. "Steam turbines in a battleship are comparatively new. All these parts are for the battleship Wyoming. When finished, they will make a complete set of Parson's turbines. They cost more and are much more delicate than the old-fashioned reciprocating engines, but they take up less space and at the same time give a higher efficiency. That is why they are being adopted."

All this was news to me, and vastly interesting, but our time was limited. We took a photograph of one of the rotors, and, at my guide's suggestion, hurried out to the Kensington yard.

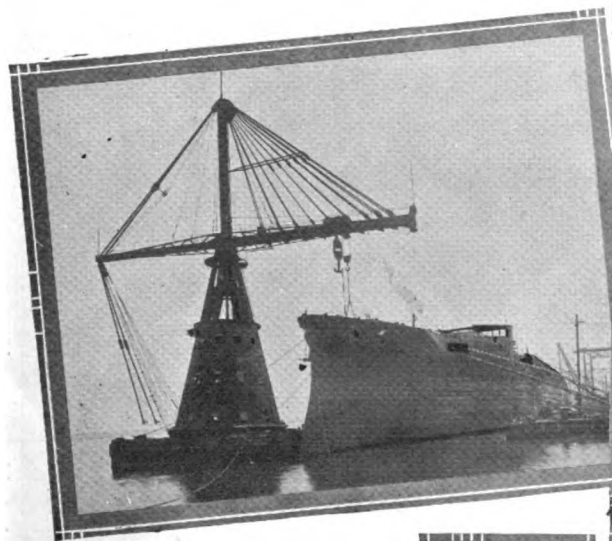
As we walked along, I learned something more about Cramp's business methods that interested me.

"You know, we have adopted a new system of handling our telegrams," remarked my friend.

"Yes? How is that?"

"We get a great number of them. It used to be that they would lie around for nearly an hour, sometimes, before they would be delivered. Our mail boys make their trips every hour, but that isn't quite fast enough for telegram service. We hit on the plan of telephoning every 'wire' we receive right to the man who is to get it—the written message follows by the next messenger as confirmation. We find that we save some very valuable time by this method."

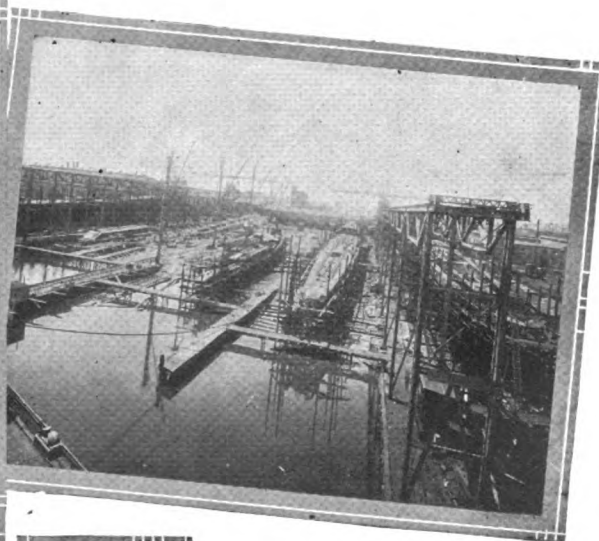
I ventured a further question along this same line.



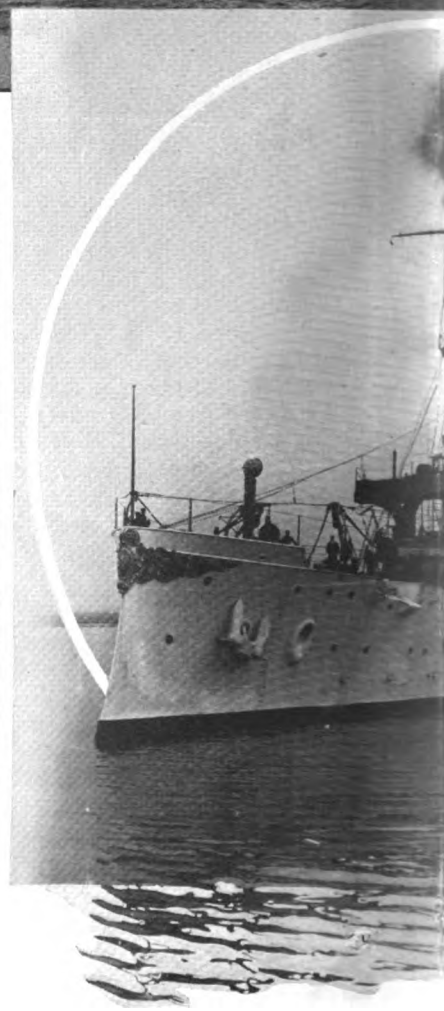
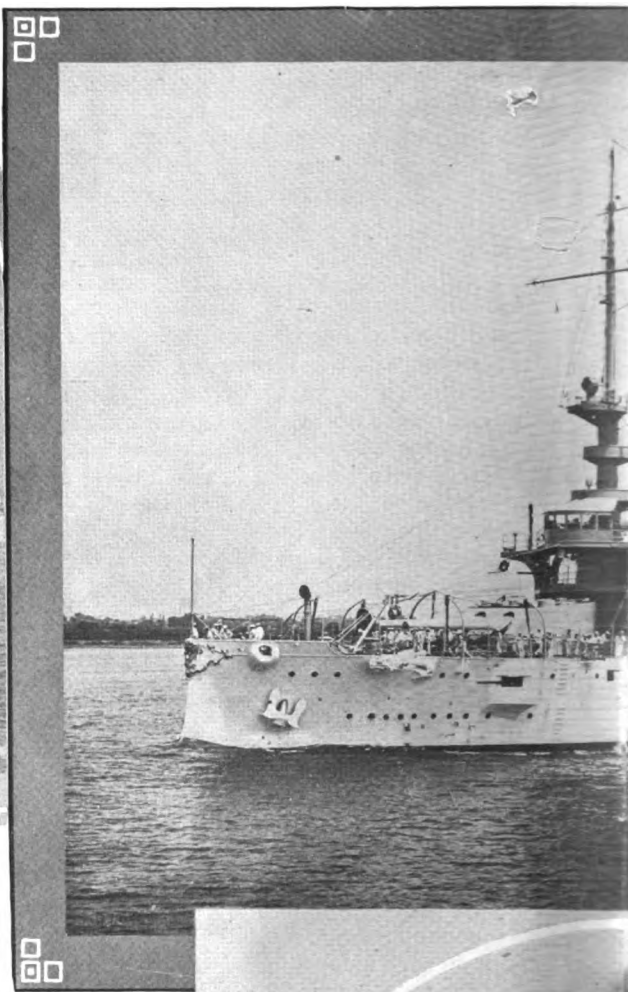
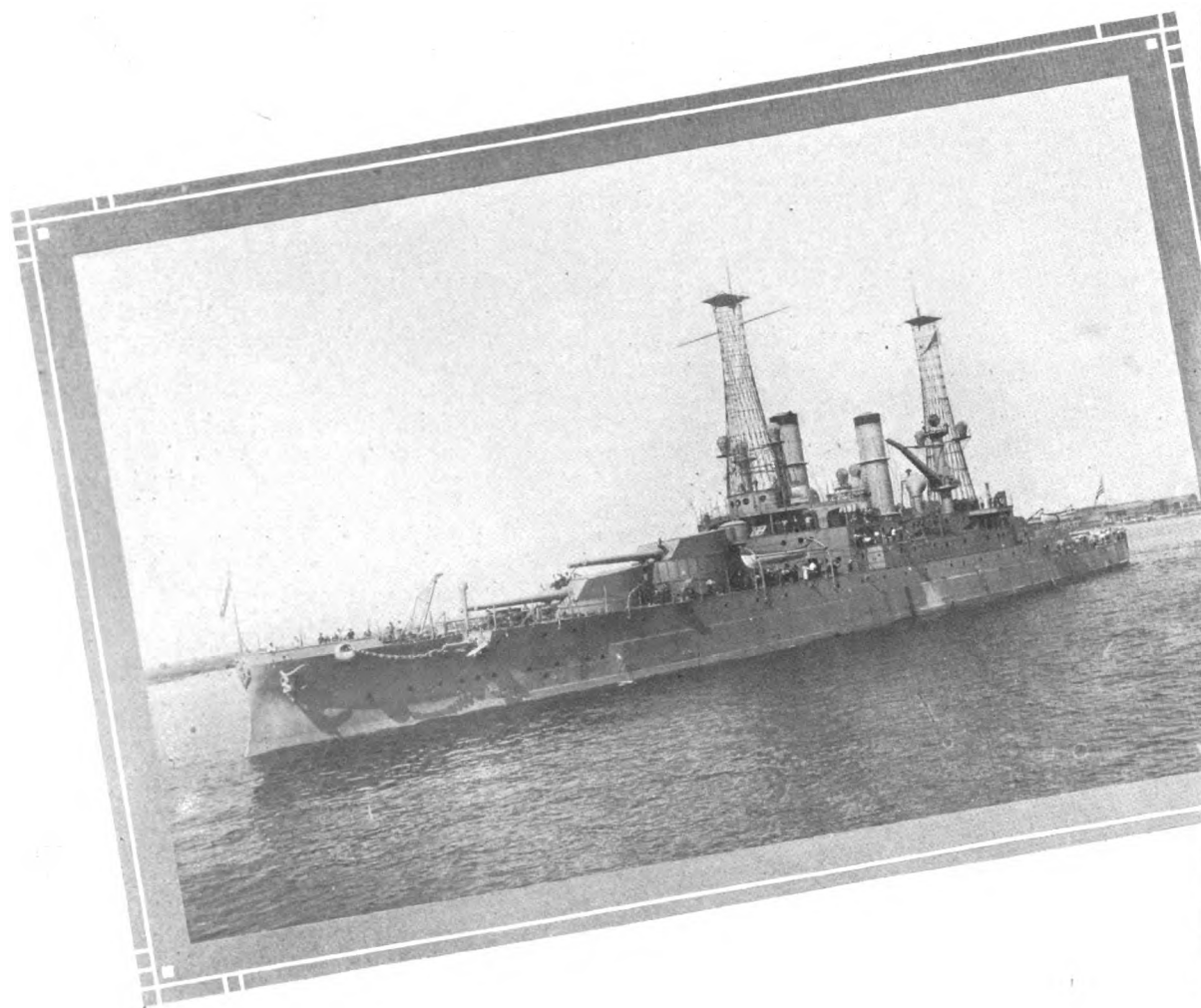
Cramp's "Atlas," or Huge Floating Derrick, at Work on the "Wyoming." A Telephone Installed on Board the Unfinished Vessel Keeps Washington Officials Informed of the State of Construction.



One of the Immense Rotors to be Installed in the Turbines with which the "Wyoming" will be Equipped.



A Section of Cramp's Main Shipyard, Showing Two Cuban and Two United States War Vessels in Course of Construction. Photograph Taken from Highest Point on the "Wyoming."



Three of Uncle Sam's War Vessels and Own Complete Te

Upper, Left to Right:

1. U. S. S. "South Carolina."
2. U. S. S. "Mississippi."

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"How many telephones are you using at present?"

"We have something over 140 in service just now. They are connected with a one-position private branch exchange switchboard. Two operators relieve each other and operate the board from early morning until late at night, and when the board is vacant, eight of the most important lines are plugged through to the Kensington exchange."

By this time we were at the lower, or Kensington, shipyard. Another big gateway barred our path until we gave a satisfactory explanation of our errand. Then we stepped inside and immediately were confronted with two more interesting developments of the ship-building art.

"Here are our marine railways and dry docks," began the official explainer. "The first one is the larger of the two. It is worked by electricity and can haul a vessel of 2,500 tons right up out of the water and set it up, high and dry, for any repairs that are needed. The other railway is for smaller boats of 1,000 tons capacity or less. It is steam operated. They've got a tug hitched up on it now."

Then he called to one of the yardmen who was standing near by: "Say, Frank," he shouted, "when are you going to have something on the big track?"

Frank pointed down the river, and, in the best Swedish-English he could muster, informed us that at that very moment a large fruit steamer was steaming up the river to take a place on the vacant marine railway.

"Good!" said my guide. "We will just have time to go over and take a look at the Adams in the dry dock, and then we can come back and see the fruit steamer being hauled up. If you want to, you can snap the railway as it is now and again after while when there is a boat on it."

So we took a preliminary picture of the larger marine railway and strolled over to the dry dock where the Pennsylvania school-ship Adams was laid for repairs.

"Is this considered a large dry dock?" I asked.

"No, it isn't nearly large enough to accommodate the big warships that we turn out nowadays, but it can take care of anything up to 6,000 tons capacity. It is 430 feet long, 130 feet wide and 30 feet deep. Some of our warships are bigger in every way than those figures."

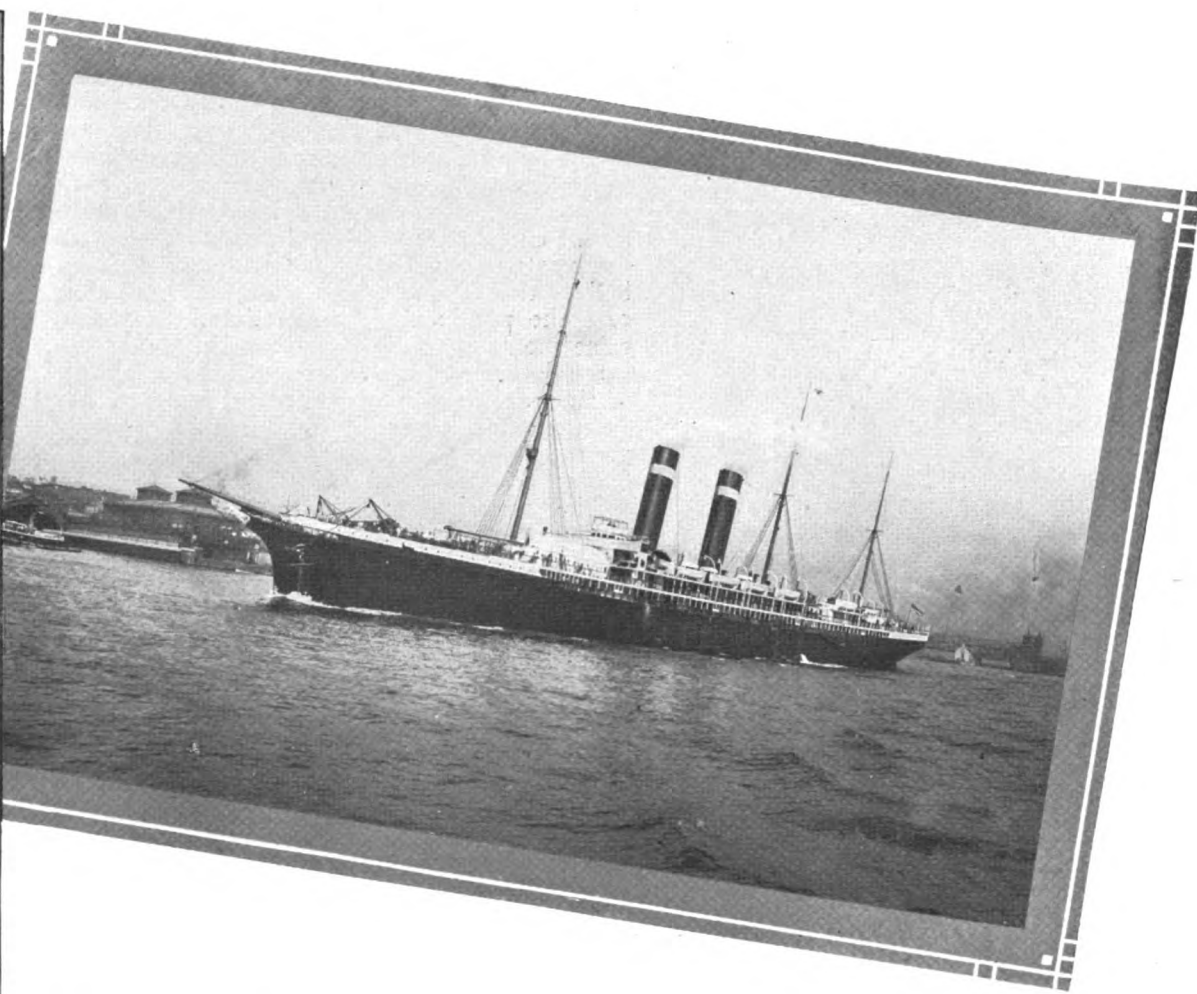
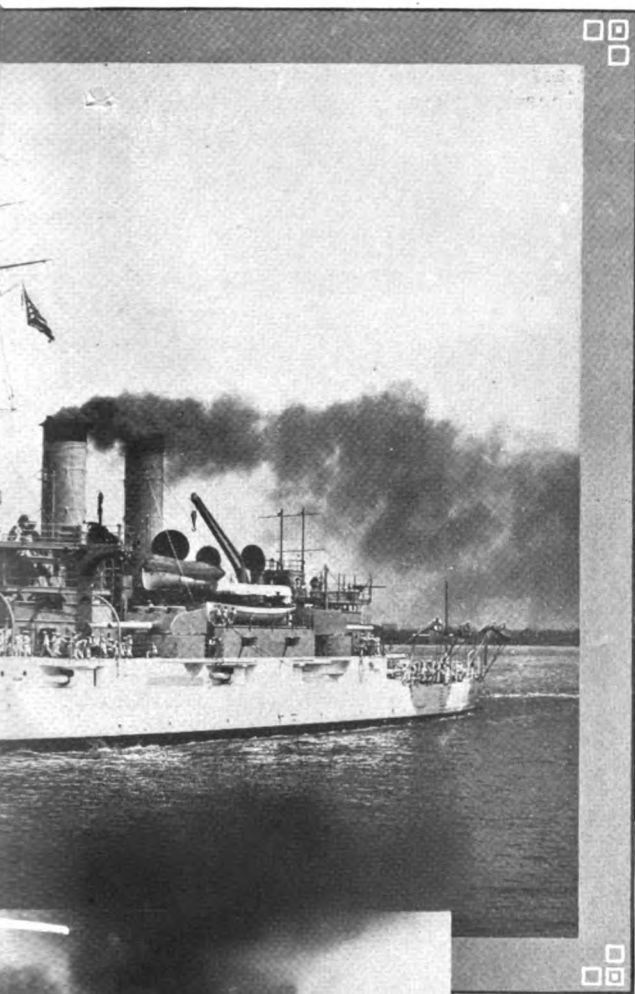
He spent quite a bit of time looking over the historical old Adams. The superintendent of the yard joined us and took occasion to fling a little joke at the nondescript rigging of the boat. It is equipped both with masts and spars and the accompanying rigging so that the young students can learn the sailing part of their vocation, and also with engines and propellers so that they can get the more modern knowledge.

"What sort of rigging would you call that?" I asked the old master seaman.

"What would I call it?" he replied. "It is a cross between a fire engine and a catboat."

By this time they were beginning to haul up the West Indian steamer on the marine railway, and we went back to see the operation. But it was slow work. For some reason it was necessary to haul the boat up about half way and then let it slide back into the water. This operation was repeated a number of times. We could wait no longer to see it photographed it as it was.

A glance at my watch gave me the last of a series of very interesting news items. It was time for me to thank my friend, the guide, for a pleasant and instructive afternoon, and to leave.



Telephone System Installed in the New Union Station, Baltimore

No better comparison could be made of the telephone system to be installed in the New Union Station of Baltimore than a comparison of the old and inconvenient station building with the new and palatial quarters.

At the time of the Baltimore fire the Pennsylvania Railroad had an old, antiquated one-position drop board, operated by boys. This board had a capacity for 90 telephone lines and 15 trunk lines to the Mt. Vernon Exchange of the Chesapeake and Potomac Telephone Company. They had cords for making fifteen connections with no supervisory signals for the cords. Although the capacity of this board was 90 telephones, there were but about 60 in use. It was necessary, when a call came in, for the operator to restore the drop by hand, and, worst of all, they did not even use common battery ringing. All of the telephone stations were signaled with a hand generator.

This switchboard was located in what was practically the garret of Calvert Station. About five years ago the switchboard was moved to Union Station and a two-position common battery switchboard installed. When it was finally decided to build the new station, this switchboard was moved temporarily to Calvert and Centre Streets, and the Pennsylvania Railroad and the Chesapeake and Potomac Telephone Company's telephone engineers, after many consultations, decided upon a switchboard of the most modern type.

This will be a four-position multiple board, with lamp signals and double supervisory signals for the cords. One position of the switchboard will be equipped for the handling of toll and long distance calls only. The cords for the handling of this work are of a new pattern, and very few of them have been installed up

to this time. The Pennsylvania Railroad owns many long distance lines connecting with Philadelphia, Harrisburg, Washington and other intermediate points; also lines running directly to its large signal towers. The installation of a toll position will facilitate greatly the handling of this class of telephonic communication.

A second position is for incoming local calls only, and the third and fourth positions are for answering intercommunicating calls of its own system and for outgoing local calls.

This switchboard will be equipped at once for 140 telephone lines, practically all of which will be working upon the completion of the station. There will be facilities provided for 40 trunk lines to the Mt. Vernon exchange and 10 special long distance and toll lines.

The Railroad Company has provided special quarters for this switchboard, and the operators will be young ladies who will have a resting room of their own.

The Railroad is compelled to operate its switchboard twenty-four hours a day, but in some periods of this twenty-four hours the amount of telephone business done is very much less than at other times, therefore the board is so arranged that one, two or three operators can efficiently handle the telephone connections.

Three years ago there were pay station facilities in Union Station consisting of an operator and but two booths. Upon moving to the temporary quarters, four additional booths were provided, making a total of six. In the new station there will be a two-position pay station switchboard and nine sound-proof telephone booths of the most modern type. Every convenience will be given the traveling public for making quick calls, and nowhere in the country will there be more convenient or more handsome pay station quarters.



and an Ocean Liner Which Have Their Telephone Systems

3. Transatlantic Liner "New York."
Lower: U. S. S. "Tennessee."

Competition

By M. H. Buehler

(Continued from page 3)

the majority of men, with their limited means, for the development of their ability and along broader lines.

The larger the corporation, the larger and more remunerative the position for which each man may strive, so that the creation of these larger operating units broadens the possibilities of each of us, and these higher positions are within the reach of all with the ability to fill them.

To-day as never before is there a need for men of ability, men of initiative, men able and willing to work, those who want work not merely for the compensation they shall receive, but those who labor for the pleasure and satisfaction there is in the knowledge of accomplishing something, such are the men sought for, and such are the men who command the greatest compensation.

In this connection I would quote from Elbert Hubbard in the *Philistine*:

"The world bestows its big prizes, both in money and honors, for but one thing.

And that is initiative.

What is Initiative?

I'll tell you: It is doing the right thing without being told.

But next to doing the thing without being told is to do it when you are told once. That is to say, 'Carry the message to Garcia;' those who can carry a message get high honors, but their pay is not always in proportion.

Next, there are those who never do a thing until they are told twice; such get no honors and small pay.

Next, there are those who do the right thing only when necessity kicks them from behind, and these get indifference instead of honors and a pittance for pay. This kind spends most of its time polishing a bench with a hard-luck story.

Then, still lower down in the scale than this, we have the fellow who will not do the right thing even when some one goes along to show him how and stays to see that he does it; he is always out of a job, and receives the contempt he deserves, unless he has a rich Pa, in which case Destiny patiently awaits around the corner with a stuffed club.

To which class do you belong?"

The success of a public service corporation also depends very largely upon the opinion of us as individuals and as a corporation, entertained by the public at large. The public must not only be given good service by those in the operating room, but must be treated courteously and in a businesslike manner by each of us who is approached, because as the individual representing the Company conducts himself, so is the reputation of the corporation formed.

The Commercial Department has very wisely expended much energy and large sums of money in impressing upon the minds of our patrons the value and reliability of our service, and of the need for courteous treatment on the part of all employees; however,

there is one respect in which the public is woefully ignorant in reference to our business—they seem to think that any one in the business is to be sympathized with, by reason of his connection with the Company—they are of the opinion that our principal duties consist in appeasing dissatisfied subscribers and have no conception of the exceedingly small number of complaints received in comparison with the vast amount of traffic handled, and we believe that it would be a politic move to educate the public along these lines. It would raise the company in its estimation and at the same time would impress upon it the reliability of the service in a very forceful manner.

Next to a corps of loyal employees, our greatest asset is an understanding and satisfied patronage.

The appreciation of the possibilities of united effort of our large number of employees was shown in a recent article in THE TELEPHONE NEWS, which requested that we all should do our shopping by telephone, calling attention to not only the convenience it would be to those following the suggestion, but especially to the increased value it would give to the service of those patrons of the company receiving the orders and the benefit accruing to the company.

So it will be if we all constantly keep in mind the interests of the Company.

What wonderful results may be accomplished if we together are ever on the outlook for making or saving money for the Company, for avoiding errors, for improving our relations with the public.

This should be our constant aim, for the public, the shareholder and the employee are equally interested in the success of the corporation, either of the three withdrawing from the partnership is to the detriment of the other two, and the one can not be honestly benefited without benefiting the others. Our successes and failures are interdependent.

So much in this contest depends upon the individual attitude and viewpoint that I am constrained to again quote from Mr. Hubbard by giving you "The Busy Man's Creed:"

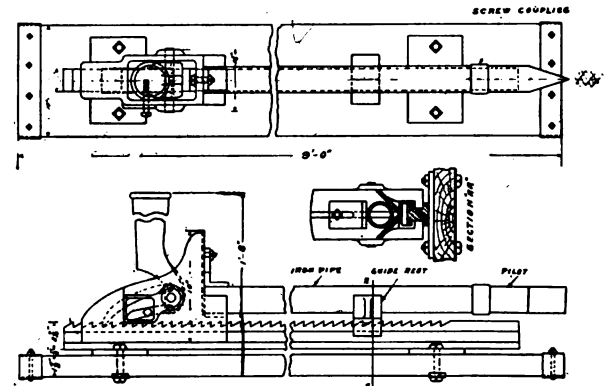
"I believe in the stuff I am handing out, in the firm I am working for and in my ability to get results. I believe that honest stuff can be passed out to honest men by honest methods. I believe in working, not weeping; in boosting, not knocking; and in the pleasure of my job. I believe that a man gets what he goes after, that one deed done to-day is worth two deeds to-morrow, and that no man is down and out until he has lost faith in himself. I believe in to-day and the work I am doing, in to-morrow and the work I hope to do, and in the sure reward which the future holds. I believe in courtesy, in kindness, in generosity, in good cheer, in friendship and in honest competition. I believe there is something doing, somewhere, for every man ready to do it. I believe I'm ready—right now!"

We have a past of which we all may be proud, and, judging the future from the past, or basing our opinion on our assets as we find them at present, we feel that in the contest upon which we are entering we have every reason to believe that The Bell Telephone Company of Pennsylvania and Associated Companies shall rank first, which we know is the aim and expectation of every one of her 14,000 loyal employees.

The Barrett Pipe Forcing Jack

The Barrett jack, an instrument with which the Engineering Department recently has been experimenting, is proving unusually valuable in effecting economies in the work for which it is designed—in forcing iron pipe through earth to make sub-duct connections and thus avoid digging trenches.

BARRETT EXTENSION JACK



To date the Philadelphia Plant Department has completed about a score of jobs varying in length of pipe installation from 12 to 70 feet. The difficulties encountered have been, if anything, rather above normal. In no case has it required more than two men to operate the jack; in many instances one man has been sufficient. In directing the pipe, it is obvious that at times unseen articles will cause it to be deflected, but the greatest variation in any of the jobs already finished was 2 feet—the average considerably less.

Comparative costs on the first nine installations in which this jack was used are here quoted and contrasted with the estimated contract prices for the same work:

Barrett Jack Operations			
Contractor's Price	Cost with Jack	Difference	Percent. Saved
\$19.80	\$10.85	\$8.95	45
15.52	8.17	7.35	47
21.21	13.79	7.42	35
15.04	8.52	6.52	48
17.79	10.17	5.62	36
31.48	18.47	13.01	41
31.48	16.05	15.79	49
19.06	10.76	8.30	44
50.24	41.64	8.60	17

Among these installations there were a number of cases in which either the city or the property owner would not permit the asphalt street or a sidewalk to be disturbed. In these instances it would have been necessary to tunnel under the entire distance if the Barrett jack had not been available. The accompanying illustration gives an idea of the appearance and construction of this newly adapted economizer.

The Pennsylvania and New York Company Sale Ratified

At special meetings of the stockholders of both Companies, held July 18, at 1230 Arch Street, Philadelphia, the agreement was ratified by unanimous vote of the stockholders for the sale of the capital stock and all the franchises, corporate property, rights and credits of The Pennsylvania & New York Telephone & Telegraph Company to The Bell Telephone Company of Pennsylvania.

THE TELEPHONE NEWS of July 15, 1910, contained a comprehensive description and map of the territory affected by the sale.

Baltimore Division**J. R. MOFFETT, Division Correspondent**

The following incident is related by a salesman in this division. It is unusually interesting and typical of the "human interest" experiences that come to employees almost every day:

While on one of my canvassing trips recently I noticed that a prospect whose name I had obtained from the property salesman, had moved in. I called and solicited the business, but was told that the house was within walking distance of the nearest public station, and if they did need a telephone they would go there. During my conversation I noticed a tot about two years old in the hallway, and thought it would be a good plan to use the emergency idea—that members of the house might become ill, impressing it by bringing in the baby. This brought out a promise that the telephone would be considered.

On my next visit, one week later, the lady answered my call with her arm in a sling and greeted me with "You are a Jonah, but come in." I asked her reason for the remark, and she said that I had not left the house ten minutes before she broke her arm. While coming down the steps she had tripped, and her first thought after landing was to get the doctor quickly, and by telephone. She said she believed I brought about the bad luck by dwelling on the emergency call so strongly. It is needless to say that no further argument was necessary to land the application.

A postal card that seemed to urge a surgical operation was received at the Cashier's Office, Baltimore. It read:

"Please remove the telephone from Mrs. Blank early Friday morning."

The Baltimore *Sun* of July 8 had the following to say of the consolidation of the telephone interests in the vicinity of Cumberland, Md.:

"The Mayor and City Council of Cumberland last night passed an order approving the proposed merger and consolidation of the Chesapeake & Potomac Telephone Company (the Bell system) and the Western Maryland Telephone Company, the independent system. By the terms of the consolidation it is understood the stockholders of the Western Maryland Telephone Company, composed entirely of business men of Cumberland and Allegany county, will receive \$80,000 for their stock, and the Chesapeake & Potomac Telephone Company assumed the bonded indebtedness of \$165,000.

"The Western Maryland Telephone Company operates 2,700 or 2,800 phones in Cumberland and Allegany county, while the Bell system has less than 1,000.

"By the order passed by the Council the Chesapeake & Potomac Telephone Company agrees to consolidate the two telephone systems within 60 days after stock is acquired and acquiesced not to change the rates."

Hagerstown District. The following letter, received from a Westminster, Md., resident, refers to the building illustrated in the July 15 issue of THE TELEPHONE NEWS:

As a public-spirited citizen, and because I am located in the neighborhood of your new office building, I wish to extend to you my congratulations on

the improvements recently made in your plant here—in particular the building, which is a great improvement, a credit to the town and to yourselves. I have heard a great many people express themselves to that effect, complimenting the appearance as well as the service we now have.

A No. 1 private branch exchange and ten stations have been installed at the tannery of W. D. Byron & Sons, Williamsport, Md., superseding a direct line and extension station.

The Broadfording Telephone Company and the Greenfield Telephone Company rurals, Plan "A," have connected with the Hagerstown Exchange, with a total of 21 stations.

The switchboard at Martinsburg has recently been equipped with 60 additional line signals, making 300 now in service.

The two copper trunks formerly owned by the Maryland Telephone Company, and used by them from Baltimore to Pittsburg, have been acquired by the Chesapeake & Potomac Telephone Company, and are now used as Baltimore-Frederick-Martinsburg-Cumberland and Cumberland-Pittsburg trunks.

The Inwood Telephone Company is stringing two miles of wire, which will give service to five new subscribers.

The Commercial Department at Cumberland has received an order for a No. 2 private branch exchange with four stations, to be installed in the Washington Lunch Room, Baltimore Street.

The Greenridge Orchard Company, Greenridge, Md., is now running 31 miles of wire to connect its various offices. This will also connect with the Chesapeake & Potomac Telephone Exchange at Cumberland, Md.

The Chesapeake & Potomac Company has installed a telephone system on the National Guard camp grounds, connected by private wires with the Frederick Exchange. There is also an exchange on the grounds, with ten telephones. One station is for the use of the public, and the others are for the use of the various commands. The exchange is in charge of one of the signal corps. Service was available before the tents were up.

PLANKINTON.

Philadelphia Division**W. RITCHIE, Division Correspondent**

The accompanying cut appeared in three Philadelphia newspapers of recent date, with an appropriate advertisement stating that the telephone squad had been organized in order to deliver promptly goods ordered by telephone. Its reproduction here is not with a view to proclaiming this firm as pioneers of this type of advertisement, for they are only one of a great many who have just begun to appreciate the possibilities of the telephone as a medium of securing business. What is particularly desired is to show that no influence of the Company was brought to bear in its publication. It was simply the firm's own recognition of the profits that would accrue from the public being told of the attention given to orders over the telephone.

The switchboard at the Chestnut Hill Exchange is being enlarged. Six additional positions are necessary to take care of the increasing traffic.

The trouble report made at 2 P. M., July 17, after the severe storm, showed 1,088 lines and 1,663 stations affected. Altogether there were 10 underground subscribers' cables, three aerial subscribers' cables, one house cable and one underground trunk damaged. In making repairs to the underground cables it was necessary to replace five sections in order to "O. K." the trouble, and in one case to dig up a street for about 20 feet. The Kensington District suffered most, five of the 10 underground cables affected being in that district.

The Line Orders Clerks of the Commercial Department have been transferred to the Contract Department, where the writing and checking of line orders will be done in the future.

The Commercial Department recently received a letter from a Pittsburg subscriber stating that he had ordered his telephone moved to Philadelphia, and inquiring when the service would be installed at his new address. He was promptly set straight regarding the matter by the department.

The Main Line District Office has been moved to 1230 Arch Street. DREW.

Plant Employees Drown

John H. Klein and Edward B. Beck, both of the Maintenance Division of the Plant Department, were drowned on Sunday, July 9, while sailing on the Delaware near Philadelphia. They started from the Allegheny Avenue Wharf about 3 P. M. in a sail boat. Failing to report for work on Monday, the Kensington Wire Chief made inquiry at the place where E. B. Beck boarded and was informed that he had not returned. On Tuesday morning the Wire Chief made inquiry at the wharf from which the men started and was advised that the boat was lying near the shore on the New Jersey side, opposite Bridesburg. The facts were reported to the police and the body of E. B. Beck was found on Tuesday evening, July 11, and that of J. H. Klein on Friday evening, July 14. E. B. Beck was appointed to his position August 3, 1906, and J. H. Klein September 16, 1907. Both were greatly respected by their associates.

Traffic Department Changes

R. L. Barrows has been appointed Traffic Superintendent of the territory comprised by the Eastern Pennsylvania and Atlantic Coast Divisions. To him will report—

A. D. Merrick, Traffic Supervisor of the Trenton and Burlington Districts,

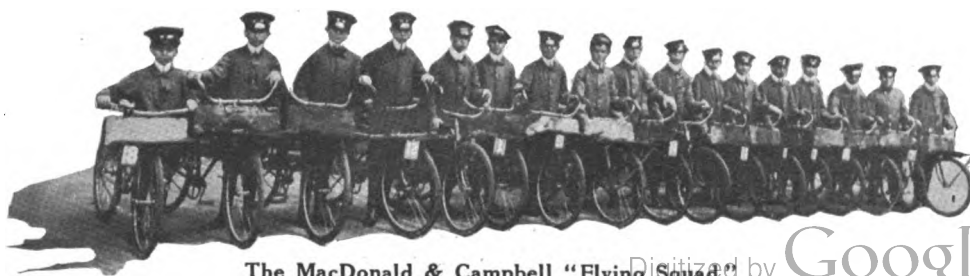
C. Zander, Traffic Supervisor of the Atlantic District,

M. E. Lescure, Traffic Supervisor of the Wilmington, Chester and Dover Districts,

C. A. Heisler, Traffic Inspector of the Norristown, Pottstown and West Chester Districts,

R. D. McElroy, Traffic Inspector of the Ogontz and Lansdale-Doylestown Districts,

J. R. Brown, Traffic Inspector of the Camden, Bridgeton and Woodbury Districts.



The MacDonald & Campbell "Flying Squad."

Pittsburg Division

L. W. GRISWOLD, Division Correspondent



The Wheeling, Va., Ball Team

Wheeling District. There has been a ball game in Wheeling that caused a tremor to stop running through the southwestern extremity of our territory. Last year there was a ball game and the tremor in question was started. It continued tremoring until July 8, at 6.30 P. M., when the score stood Pittsburg 17, Wheeling 16. It was this score that stopped the tremor. Last year the score was about 28 to 8 in favor of Wheeling, and it is no wonder a tremor started.

When the Pittsburg players landed at Island Park it looked like the easiest kind of money for Wheeling; but we had practiced for one hour and a half. This, with the bright sunlight, seems to have fitted us for the unlucky seventh inning, but that is about all. Next time we will be more moderate in our practice. We are hoping for the next time. The score:

PITTSBURG.	R.	H.	P.O.	A.	E.
Allen, 3b.	2	1	2	3	1
Malle, p., s. s.	3	3	5	2	1
Philips, 1b.	4	4	7	0	0
Hoffman, p., 2b.	2	3	6	2	0
Mansfield, r. f.	1	2	0	0	0
Ewing, s. s., c. f.	0	*2	4	5	1
Geddes, l. f.	1	2	0	0	1
Brown, 2b., c.	2	3	3	3	0
Gillespie, p., c. f.	2	3	0	1	0
	17	23	27	16	4
WHEELING.	R.	H.	P.O.	A.	E.
Briceland, p., 1b., s. s.	0	1	5	3	0
Wood, c.	1	2	6	1	0
Lawlor, r. f.	2	2	1	0	0
Smith, p., s. s.	2	2	2	5	1
Healey, 2b.	1	3	3	2	2
Caladine, 3b.	2	2	2	2	1
Dowler, l. f.	2	2	1	0	0
Thrall, c. f.	3	3	1	0	0
Hollister, p., 1b.	3	3	6	2	2
	16	20	27	15	6

Two-base hits—Philips 2, Mansfield, Gillespie, Healey 3. Double plays—Malle, Ewing, Philips; Ewing, Brown, Philips. Struck out—By Malle 3, by Hoffman 1, by Gillespie 2, by Briceland 1, by Smith 2. Bases on balls—Off Gillespie 5, off Briceland 7.

*NOTE:—Ewing is given two hits as the result of his personal solicitation.

NOTES OF THE GAME.

"There is no one out and lots of time to get home," said G. E. Lawlor, as he remained riveted to third base.

F. T. Ewing tried to steal second while the pitcher had the ball. "Oh! I did it frequently at Franklin and Marshall," said the Traffic Superintendent, "and got away with it, too."

R. W. Healey spent most of July 14 writing an elaborate account of the contest to be mailed to THE TELEPHONE NEWS at the conclusion of the game. But the letter was never sent—his bunch lost.

After the game R. W. Philips took the ball and will always be credited with stealing it.

A "Cobb" bat guaranteed for four home runs was hidden by the Wheeling cohorts. The stick had been carefully reared by Z. C. Gillespie, who found it at 7 P. M. in the last row of the grandstand.

G. A. Geddes has played cricket in India and bats like one. All the afternoon he thought he was playing in right field.

Charles Geddes, Superintendent of telephones on the Panama Canal, sat in the grandstand and said it was the hottest place he had visited in years.

F. K. Mansfield weighed 240 when he went to the bat for the first time and 227 when he struck out in the ninth.

J. K. Martin is a good umpire. "It was hard for me to know which side was at bat or how many balls and strikes I had called on a man," he said after the game.



Photographic Proof of the Score at end of Pittsburg-Wheeling Game

Greensburg District. During a ten-day encampment of the National Guard of Pennsylvania at Twolick, located near Indiana, Pa., two public telephones were installed for the use of the guardsmen in talking with their families at home. The stations were connected with our Indiana Exchange.

Fire in a building of the Blairsville, Pa., Automobile Company damaged two of our cables so badly that they were put out of service. The fire occurred at 10.30, and by noon the cable gang was on the job and had all the lines in service in a short time.

Extensive improvements are being made in our plant at Irwin, Pa. New central office equipment of the common battery type is being installed. New quarters have been taken, and the equipment is to be made up to date in every respect. A new toll board is to be installed.

At Jeannette a new board has been placed, and new central office quarters have been taken. Extensive additions have been made to the outside plant.

The *Tribune*, a Greensburg daily newspaper, is now appearing with announcements regarding the acceptance by telephone of want ads and orders for printing. The *Tribune* had a private branch exchange installed a short time ago.

The Yukon-Waltz Farmers' Telephone Company, a Plan "A" rural company, connected with our Youngwood, Pa., exchange, has just completed the installation of 15 stations.

HUGUS.

Uniontown District. Morgantown, W. Va., has a barber who is a progressive citizen and a firm friend of the Bell Company. He has made his telephone invaluable to himself and his customers by calling some twenty or more of his "regulars" each day, thus doing away with the

most unpleasant feature of most barber shops—the long waits. The innovation has been pronounced a success from the start, and is an added demonstration of the adaptability of the telephone.

The contract has been awarded for the new Bell building on West Main Street, in Clarksburg. The new structure will be three stories, of brick and stone, and thoroughly modern.

CAHOON.

That care should be used in receiving messages over the telephone was shown the other day, when a Pittsburg telephone man received a call from a big printing concern. The clerk understood the man to say that a receiver had been appointed for the publishing house. After the conversation had been concluded our employee began to wonder why on earth the printer had called up and told of the receivership. The wondering continued, and finally the Bell man walked over to the printer to console him. The printer did not seem very downcast, and at the conclusion of the visitor's sympathetic discussion remarked:

"Why, you are thinking of the wrong kind of a receiver. I was talking about this kind," and the printer tapped the telephone receiver on his desk with a pencil.

The following letter has been received by the bookkeeping division from Rillton, Pa.:

DEAR SIR:—We had receive the statement. We don't know what for is the statement. So sent it the bill for the phone."

Recently the Pittsburg Zelenople lead was repaired after dark in a unique manner. At 5.30 P. M. two men left the Western Electric Company's headquarters with an automobile loaded with 300 pounds of copper line wire. After driving 24 miles the break was reached. It was then 8 o'clock and seven sections of the 20 wire toll lead were entirely down. Two trees, each 60 feet in height, had fallen across the lines. At 9 P. M. four additional men arrived from Ellwood City. The line was repaired and all wires were working at midnight. The speed in the dark was due in a large measure to the automobile. The machine was stationed at one end of the break, and the headlights furnished enough light to enable the men to work.

The Telephone Used in Organ Tuning.

In a recent interview, W. D. Lindsey, in charge of the Telephone Sales Department of the Western Electric Company said: "New applications of the telephone are being made every day."

"A prominent wrecking firm, in Philadelphia, which employs a large number of divers recently discarded the old method of transmitting signals from beneath the water by means of signals upon a rope, and have made use of special telephone equipment, manufactured by the Western Electric Company, the use of which enables the diver and the attendant upon the float to be in direct telephone communication. The use of the telephone greatly facilitates the work, especially when two or more divers are working from the same float."

"Another special application of the telephone was made in the installation work of the magnificent organ now being installed in John Wanamaker's Department Store Building."

"The main organ, which is said to be the largest in the world, has five keyboards. It is located in the arcade on the first floor, south;

a second organ, called the 'echo' organ is located on the sixth floor, north. Both came from the St. Louis Exposition. Some idea of the magnitude of the organ may be gleaned from the fact that over 11,000 different pipes are used. The pipes are made of both wood and metal. The largest wooden pipe is thirty-two feet high, twenty-seven inches by thirty-two inches in cross section. The largest metal pipe is seventeen inches in diameter, and weighs over 800 lbs."

"The air used in the playing of the organ is controlled by electric magnets, the contacts of which are closed upon the keyboards of the organ."

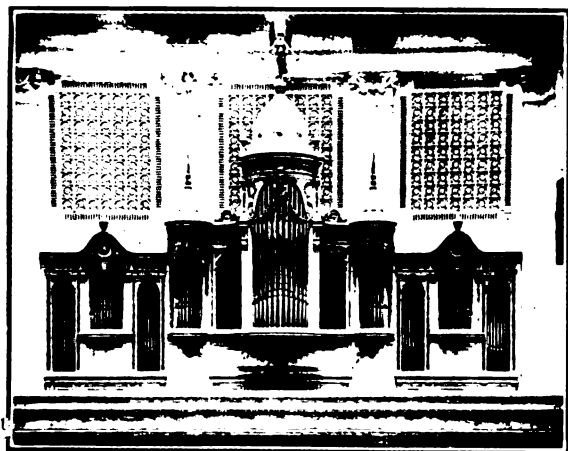
The main organ consists of five parts:

1. Choral
2. Great
3. Swell
4. Solo
5. Pedal

"The choral and great parts were tuned by means of a tuning fork, the other three parts were tuned in unison, using the first two parts as a basis. The actual tuning was accomplished by the use of a special telephone circuit between the basis and the part of the organ being tuned, an 8-volt series transmission circuit being used."

"Upon the sixth floor, north, is a smaller organ, which is called the 'echo' organ. In order to secure satisfactory results the 'echo' organ must be in strict tune with the main organ. This was accomplished by the use of the telephone circuit, there being a distance of about 600 feet between the two organs. The circuit used in this case was a 24-volt straight common battery Western Electric telephone circuit connecting the two instruments."

"Of course it was not possible to use the telephone in the direct tuning of some of the highest octaves, especially the piccolo notes, but the telephone was actually used to tune directly one of the middle octaves, and this was used as a base upon which the higher and lower octaves were tuned."



John Wanamaker's Newly Installed Great Organ, the Largest in the World. Formerly it was Located at the St. Louis Exposition. The Telephone was Used in Tuning it.

This is said to be the first time that the telephone has been used for this purpose. Its use hastened the completion of the work by two weeks at least and permitted the organ to be used on June 22.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Twelve original oil paintings illustrating various practical uses to which telephones can be put are being displayed alternately, three at a time, in the windows of the Atlantic Coast Division Manager's office.

Atlantic District. While Atlantic City has long been famous as a "Convention City," entertaining delegates to various conventions from all parts of the world, its convention "peak" was reached last week when a combination of two great bodies brought together a crowd estimated at 300,000 persons. This was caused by the overlapping of the conventions of "The International Christian Endeavor Society" and "The National Reunion of the B. P. O. Elks." Delegates were in attendance at the former convention from India, Australia and other far-distant countries, as well as from every important city in this country—while the 33,000 Elks, with their families and friends from all over the world, were preparing for their big parade on the 13th. The presence of this vast crowd was reflected in the traffic curve, which broke all previous records in the volume of business handled. The points of destination of Long Distance calls were as varied as the cities represented at the conventions.

Five smaller conventions are now in session here, the most important of which is "The National Fertilizer Manufacturers' Association" on the Million Dollar Pier.

The Ocean City Council has ordered 45 Bell Telephones installed in prominent places, to be used as a fire and police alarm. Bell Telephones were decided upon over various other systems because of the "reliability of Bell service."

Camden District. The electrical storm on Monday, July 17, was unusually severe. The Woodbury railroad station, on the West Jersey and Seashore Railroad, which is operated by the third-rail system, was a spectacular sight. The lightning cut a cable from the high tension wires supplying the current to the rail. Passengers awaiting trains at the time claimed they had never seen anything so vivid. The prompt action of the railroad employees prevented any accidents, and the Westville Power Plant, which was notified by telephone at once, stopped the trouble until the break was repaired.

A number of telephones were put out of commission in and around Woodbury during the severe electrical storm that hovered over the town for nearly two hours, but our men were on the job in short order, and much credit is due them for the way they went to work to clear the trouble. Mayor Ladd's opposition telephone was wrecked and almost caused a costly fire; this Company's instrument stood the test.

A new 120-pair cable is being placed on West Street, Camden, between Mickle and Line. The Woodlynne cable is in course of construction, running from White Horse Pike to the Borough, to accommodate the demand for Bell service. The Westville Avenue cable is completed, thus giving Camden's East Side people a long-wished-for want. CROXTON.

Dover District. In a small town in southern Delaware there is a cigar manufacturer who has been fearing it would be necessary to close his factory for lack of orders. He was at a loss to know how to tide over this unusual summer slump in business. In the course of

his canvass, Salesman Prince, of this District, met the manufacturer and heard his complaint. When the situation was made clear the Salesman proposed a plan of action in which the manufacturer had little faith. But as an experiment he was willing to try it. Accordingly, a telephone directory was obtained and a list of the cigar merchants throughout the peninsula was quickly compiled. Several names were selected for the trial, and the manufacturer called them by telephone. The results were at once apparent, and the remainder of the persons were called. The plan worked, and orders amounting to several hundred dollars were secured in the course of a half hour, together with a number of new customers. In speaking of the experiment later, the manufacturer said his only regret was his failure to recognize earlier the value of his telephone. PRINCE.

Norristown District. Contracts for monitor switchboards have been closed with the Haines, Jones and Cadbury Company, of Norristown, and the March, Brownback Stove Company, of Pottstown. BEERER.

Trenton District. A new 32 horse power, four cylinder Mack motor truck arrived in this district on July 14 for the use of the Plant Department. On July 15, at 1 P. M., a telephone message was received from Bristol stating that a fire had burned a 60-pair cable so badly that two spans were lying on the ground. At 2 P. M. a gang of men with material left Trenton on the truck, arriving at Bristol at 3.10. The cable was repaired, all lines O.K.'ed and the men back in Trenton at 9.30 P. M.

The Princeton University Press has signed an application covering a No. 1 private branch exchange with two trunks and three stations for its new building, which replaces a No. 2 private branch exchange at the present location. GARWOOD.

West Chester District. Eighty-one of the 83 irregular rate stations in this district have been superseded. Among those changed were some of the prominent subscribers in the district.

Beginning July 1 the salesmen in the West Chester District have been making all automatic collections in their respective territories in addition to canvassing for new business. This is a new scheme in this district and bids fair to be very successful.

The storm of July 17 put about 500 telephones in the West Chester District out of service. The trouble was rapidly cleared and very little inconvenience was caused subscribers.

The work of running the cable from Kennett Square, Pa., to Unionville, Pa., which was held up on account of certain right-of-way conditions, has been resumed. About 23 subscribers will be O. K.'ed upon the completion of this line. GREENFIELD.

Wilmington District. During the past year approximately 4,000 stations on the Wilmington exchange, representing over 50 per cent. of the total number, have been placed on a standard rate basis. A substantial part of them necessitated an increase in rate.

The following letter was received by the Wilmington District Manager:

"Dear Sir: I wish to extend my thanks to you and to the Traffic Supervisor for the prompt attention given my complaint of poor service, and for the courteous letters received from both the Traffic Supervisor and yourself. It is a pleasure to do business with such men, even though it be a matter of complaint.

"I wish to state, however, that as a rule the service rendered is excellent and all one could desire." CHAMBERS.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. A subscriber stopped a salesman in this district and stated that his telephone was very convenient during hot weather, but that he covered some distance by walking the length of the store to answer it. When the salesman called his attention to the fact that for 50 cents a month he could have an additional telephone in the store and save many steps he promptly signed for an extension station.

The following advertisement appeared in a Bethlehem daily newspaper:

The heat of the summer may prevent you from coming to the Traeger Grocery Company store as frequently as in cooler weather, but it need not prevent you from being posted upon what is new and desirable in the food line. Just call up on the telephone and ask questions.

Our new building at Bethlehem has been completed. The Commercial Department has moved into its new quarters and the Western Electric Company completed the installation of the 18-position switchboard about July 20.

Altoona District. A rural-line subscriber connected with our Curwensville, Pa., central office gave a telegram by telephone to the Western Union Office at 8 P. M. The telegram was to be sent to a farmer who lived at a distance of three miles from the Western Union Office at Flint, Mich. Our subscriber says that telephone-telegraph consolidation is a good thing for him, as the telegram mentioned was delivered at one hour and a quarter after it had been sent.

The Commercial Department at Altoona has occupied its new quarters at 1120 Twelfth Street, in the heart of the business section of the city. This department, which was very badly cramped for room while occupying quarters in the Company-owned building, has now about fifty per cent. more space, and is better situated in every respect. The counter work and fixtures are all made of red oak with dull finish. A noticeable result of moving the collection office to the business centre is the fact that collections are apparently better because of the ease with which subscribers can reach our office.

Additional equipment has been ordered for the Tyrone, Pa., and Hollidaysburg, Pa., switchboards, to take care of the results of supersedure work at those points.

A recent electrical storm at Huntingdon, Pa., affected 37 lines and 108 subscribers. The Plant Department, by its usual excellent emergency work, had all subscribers in service within five hours.

One of our large shoe merchants, upon being presented with a recent issue of the booklet entitled "Long Distance Selling Methods," requested the salesman not to hand a copy of the same book to one of his competitors, as this competitor was, at the present time, telephoning to all the patrons of the first merchant, telling them that he "understood they were hard to fit, and that he would be very glad to have them come in," and so forth.

Scranton District. One of our Scranton subscribers called at the Commercial Office to pay his account and stated that he was especially pleased with the long distance service which he had received within the past week. He estimated that he had saved \$200 on one long distance call that he had during that period.

A member of a firm of Honesdale lawyers, while out of town recently, placed a call for his office in Honesdale. He received the report that the line was busy. After waiting for some time he was again notified that the line was still in use, and in order to wait until the connection was established it was necessary for him to miss his train. When he arrived home he called the Local Manager and entered a complaint. Upon investigation it was found that he was being served on a party line, and one of the other parties on the line was monopolizing the service. This report was given the firm, with the result that they signed an application for direct line service.

Wilkes-Barre District. The Markle Banking & Trust Company, of Hazleton, has signed for a No. 1 private branch exchange with eight stations for use in its new 12-story building. This service supersedes a direct line with one station. Several of the directors of this institution have held responsible positions at various times with the opposition company.

The superintendent of one of Hazleton's leading industries called on a salesman at his residence at 7.30 A. M. to have a telephone placed in his residence at once, on account of his brother being in the hospital. The station was O. K'd at 8.30 A. M. and the subscriber complimented the salesman and the Company for the quick work.

Organization and Territorial Changes

Name	Position	Location
A. Muller, Jr.	P. B. X. Wiremen to Foreman	Plant-Phila.
D. Rutley	Helper to Splicer	Plant-Baltimore
G. Smith	Helper to Splicer	Plant-Baltimore
H. J. Wright	Lineman to Sub-Foreman	Supervisor's Dept., Plant-Washington
W. H. Mullican	Lineman to Sub-Foreman	Gen'l Const. Foreman's Dept., Plant-Washington
C. E. Young	Lineman to Sub-Foreman	Gen'l Const. Foreman's Dept., Plant-Washington

Pittsburg Division

W. J. Woods	Splicer to Dist. Cable Foreman	Greensburg District, Plant Dept.
Wm. B. Foster	Inspector to C. O. Man	Plant School to Plant Chief's Force
J. L. Elliott	Fieldman to Inspector	Engineering Division, Pittsburg.
J. Frank Gill	Foreman to Locator	Short Line Crew to Engineering Division
H. W. Hamburg	Installer to Repairman	Plant-Pittsburg
Wm. Nelson	Repairman to Wire Chief	Monessen, Pa. Plant Dept.
H. S. Price	Acting Wire Chief to Wire Chief	Monongahela, Pa. Plant Dept.
J. O. Mitchell	Repairman to Wire Chief	Canonsburg, Pa. Plant Dept.
L. S. Dunning	Asst. Wire Chief to Wire Chief	Washington, Pa. Plant Dept.

Washington Division

R. G. HUNT, Division Correspondent

The Potomac Electric Power Company, which supplies electric light service to the city of Washington, is embarked upon a rather extensive advertising campaign in the local newspapers. One of its latest ideas is to contract for a full page in the Washington Times. This is divided into small spaces and sold to local dealers in electric appliances and supplies at lower rates than that of the newspaper. It is called "Electrical News." A space three columns wide and 96 lines deep was reserved for items of general interest in connection with matters electrical. On July 18 the following item appeared in the "Electrical News:"

"The number of telephone stations and miles of telephone wires in use in the United States make a steady yearly increase. One telephone system alone gained last year 740,027 subscribers. Long distance lines are being extended. On May 8 a line was opened which carries voices a thousand miles farther than ever before—from New York to Denver, a distance of 2,030 miles. It is expected to have a line from New York to San Francisco within a year."

The Sibley Memorial Hospital has applied for a private branch exchange system with three trunk lines. This supersedes a one-party flat rate business service with several extensions, and will also do away with two ancient interior systems. The contract was obtained by Wm. J. Caulfield.

Although it is midsummer, this seems to be the open season for No. 2 private branch exchange contracts. Within the past few days contracts for these systems have been closed with B. S. Cabell for 4 stations, Dr. M. D. Magee for 3 stations and Mrs. John A. Logan for 4 stations. The latter is the widow of the distinguished General Logan, of Civil War fame.

As the culmination of negotiations extending over several years, an order has been received from the Depot Quartermaster of the War Department for telephone service at Forts Hunt and Washington, two military posts at a distance of about 11 miles from Washington on the Potomac River. These two points are strongly fortified and constitute the Capital's chief defense in times of war. For several years, up to 1910, these forts were afforded service by means of a most inadequate line. The principal difficulty in connection with it was occasioned by the arrangements for its maintenance. The line ran through Fort Myer, a large cavalry and field artillery post across the Potomac from the city of Washington, and thence to Forts Hunt and Washington. Fort Myer undertook to maintain the line to a specified point. From this point to Forts Hunt and Washington it was maintained by the latter posts. The result was that the line was either out of order or "dead" most of the time. For several years the military authorities, realizing the importance of furnishing these posts with an adequate telephone service, have put the matter up to this Company to devise a means by which it could be accomplished. Perennially the matter has been reopened since 1906. On each occasion this Company would submit a proposition, but for one reason or another nothing was done until a few days ago, when an order was based on our last proposal. The work of constructing the line will be begun within a short time.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

AUGUST 15, 1911

NO. 16

"Little Washington, U. S. A."

The Prosperous County Seat of Washington County, Pennsylvania

The Recent Progress in Transmission

A Paper Read before The Philadelphia Telephone Society, by
H. MOURADIAN, Engineer

“WHAT is the first place in America that was named for George Washington?” Put this question to the next ten people you meet and probably nine of them will say, “Washington, D. C.” Perhaps the tenth will say “Washington, Maine,” or give an equally incorrect answer. If the ten do these things as set forth, they will all be wrong. Then you can proudly answer and say, “Wrong! It’s Washington, of Washington County, Pa.”

“Little Washington,” as it has been known to its intimate friends for many years, has recently been added to the Pittsburgh District. There are 20,000 people within its environs and about 2,800 Bell telephones. Most of the development has grown up within the last few years. In fact, the telephone habit became contagious in Washington about the time it started to stick its fingers into the big business pie Pittsburgh was making from the various industries that were hastening to reach the junction of the Allegheny and Monongahela.

For example, some years ago the Jessop Steel Company, of Sheffield, England, decided to build an American plant. In a truly English way the Jessop concern took a large map of the Western hemisphere and carefully crossed off all of the places in which it did not care to locate its plant. Near the end of this crossing off process the concern had everything marked off except Pittsburgh and Washington. Then, again in a truly British way, the Jessop management proceeded to put a whole lot of common sense into the solution of the problem. At the conclusion of the common sense treatment Washington was pronounced the winner and a \$500,000 plant was the prize.

This move was not made to bring forth Pittsburgh’s petulance. Far from it. There were numerous reasons for locating the plant in Washington. To begin with, this city is firm in the lap of that manufacturing luxury known as cheap fuel. One dollar and forty cents will bring a ton of run-of-the-mine coal right to the doorstep, and you can get “slack” put into your bins at the rate of a little more than two thousand pounds for eighty cents. Look up the labor history of Washington and you will find that strikes and lock-outs with their attendant riots and lay-offs have passed around and not through it. One reason for this is found in the abundant facilities for education which have been provided by the townspeople. These people are strong supporters of the proper sort of schooling, and anyone who has enough desire for education will find no trouble in going as far as his brains will carry him. There are seven public schools, a seminary for young women, and a college for men.

Washington took the affirmative of the oft-debated question, “Re-

(Continued on page 6)

IT is extremely rare, except when some illuminating thought is projected in the darkness ahead by a creative genius, to mark the progress in any art by a period less than ten or twenty years, as it is the essence of human progress to be gradual.

The recent progress in transmission is notable, as it is encompassed within a period of three or four years, and appears to be due to the intelligent development of a few simple ideas.

It is my purpose this evening to sketch briefly what this progress consists in, what progress appears looming in the near future, what application we in the local field have already made and expect to make of this advanced knowledge in the art.

In order that I may be able to clearly present the real meaning and importance of this advancement, I would like to take up a few of the fundamentals of transmission.

The art of telephonic transmission is considerably more difficult and intricate than the art of power transmission, because we have to deal with a larger number of limiting factors.

The limitations in the way of the telephone engineer are many.

The sketch (curve of attenuation, Fig. 1) shows what happens when speech is transmitted over a pair of telephone wires. The energy gradually dwindles and may be insufficient even to put in motion the diaphragm of the telephone receiver. (See cut on page 3.)

On what is called a thirty-mile connection, which is generally assumed to be the limit of ordinary commercial transmission, the energy at the receiving end is about 1/1000 part of the input of energy at the outgoing end.

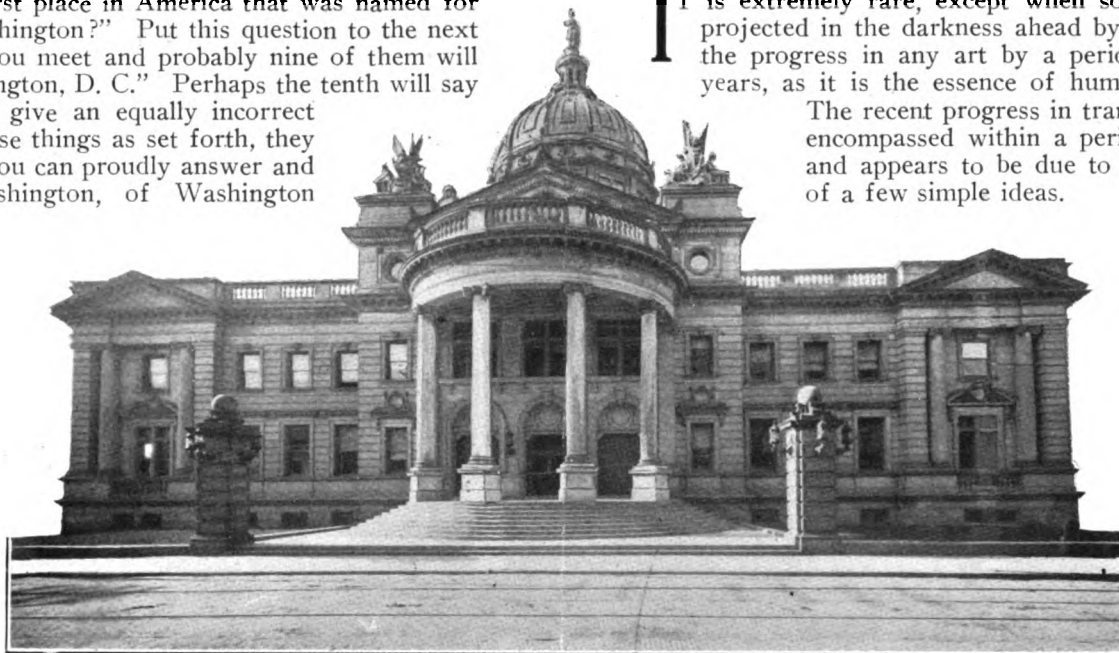
The limitations under which we suffer that do not affect the power engineer are—

1. We cannot raise the energy input at the outgoing end above a certain point without producing interference on adjoining circuits—what in telephone language is termed cross-talk.
2. We have to deal with the dissipation of current as we go along from the transmitting end of the line to the receiving end.
3. We have to transmit a large number of different kinds of speech current, each having a different pitch.

Effect of Electrostatic Capacity

The dissipation of the current as we slide along the telephone line is due to the electrostatic capacity of the line. It is due to the transmission of speech currents from one wire to the other through the medium of the so-called ether in the air. It is the same medium that wireless engineers utilize for transmitting wireless messages. The higher the pitch

(Continued on page 3)



The Million Dollar Court-House at Washington, Washington County, Pennsylvania

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telephone & Telegraph Co.

The
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Vol. VII AUGUST 15, 1911 No. 16

A Game of Aquatics

SOMEONE on *Life's* editorial staff apparently slipped a cog the other day. *Life*, remember, is the periodical, "guaranteed not to instruct." In spite of its avowed policy, consider the following decidedly instructive paragraph that speaks from the page of a recent issue:

This life, it runs, in effect, is no more than a game of aquatics. Each of us is swimming, diving, treading, floating, backing water—or sinking.

There's a seasonable thought germ here, whether *Life* is in serious or humorous mood.

△ △

Here we are in the dog days, hot, dusty and summer-tired. The mere figure of speech that pictures us splashing about in the water is refreshing; and as one stops to think it over, the aptness of the metaphor grows. We're really all in one or another puddle.

△ △

Here, for instance, are the beginners, making an awful splash in their roped-in shallows. Don your Dickens spectacles for a moment and you'll recognize them. They're the very fellows who make the most fuss around the office and have trouble in "producing." They don't seem to be able to get a stroke that will warrant their negotiating deeper water.

△ △

A little farther on you'll find the floater. He has learned a little stunt and he's vastly proud of it.

"Watch me float!" he cries.

Watch him. He stretches out flat and *does nothing* quite gracefully—for a spell. Then a swimmer happens along. His wash slips into the boasting mouth of the floater; and he's done for. He chokes, kicks and splutters. If he's lucky he sticks

down his feet and rests on friendly bottom. If he's entirely out of his depth—well, then there's a fine chance for a funeral, that's all. It's an all too common kind, this floater class.

△ △

Here and there you'll see real swimmers. Some of them, it's true, are only sprinters. They are not so important. They make a brilliant, noisy dash occasionally, but they rest too long between jobs. The swimmers that count are those who make little noise. They're the ones who cover the ground—or the water. No foam about it, no sputtering or splashing—just straight swimming. They're the back-bone of the game.

△ △

It's a toss-up between the swimmers and the divers. It takes the swimmers, both in and out of water, to keep things moving, and get the day's work done, but—

Just watch that slim fellow in the well-worn bathing suit for a minute. Something has been lost in deep water—a valuable trinket. He stands well up on the bow of his boat, leans over and directs his oarsman in short, sharp phrases. Finally he is at the right spot. A spoken word, a poise; then, like a flash, he parts the water. It closes over him. For a time not a bubble rises to mark his presence. Nothing but silence. One begins to wonder if something has happened. Then comes a swish, a panting breath, and he's up again, holding at arms' length the coveted jewel. He has won. He's the man who ventures beneath the surface, out of the ordinary channels, and gets something that's badly needed.

△ △

Do you get the point?

Isn't it true? We're all in one pool or another. We're going to put on our own tags—be it splasher, floater, swimmer or diver. The thing to do is to get your stroke. Next, take your choice; swim, dive or do both. Then get out into deep water and stir things up.

But *DON'T* convince yourself you can't learn to swim. Keep paddling. It's "only a game of aquatics," you know, and if John Smith can play the game, why can't you?

Information Wanted

A MAN of newspaper experience told this incident. Soon after he began the work of reporting he was assigned one day to learn the details of a fire which destroyed the house of a man who lived a mile and a half out of town. There being no way of riding to the scene he walked the three miles and returned about 3 P. M. with his list of details. The editor looked over the notes and said:

"Anyone injured?"

The reporter confessed that it hadn't occurred to him to ask.

"Go find out," was the order.

Ashamed that such an important point had escaped him, the would-be newspaper man "legged" the three miles again and learned that necessary detail. Returning at 6 P. M., tired and hungry, he promptly reported the information, only to hear:

"Any insurance?"

He didn't wait to be told to go get that, but for the third time trudged the three miles; on the way he thought over any other possible questions and decided that he had covered everything.

The editor accepted the details without the slightest comment or change of countenance.

"After that," said the newspaper man, "I made it a point to cover my subject completely during the first trip and I never got caught again. It taught me a lesson that I can't forget."

One is forcibly reminded of the foregoing incident when he telephones and receives the following replies or ones similar to them:

Is Mr. Blank in?

No.

Will he be in soon?

Don't know.

Is he in the building?

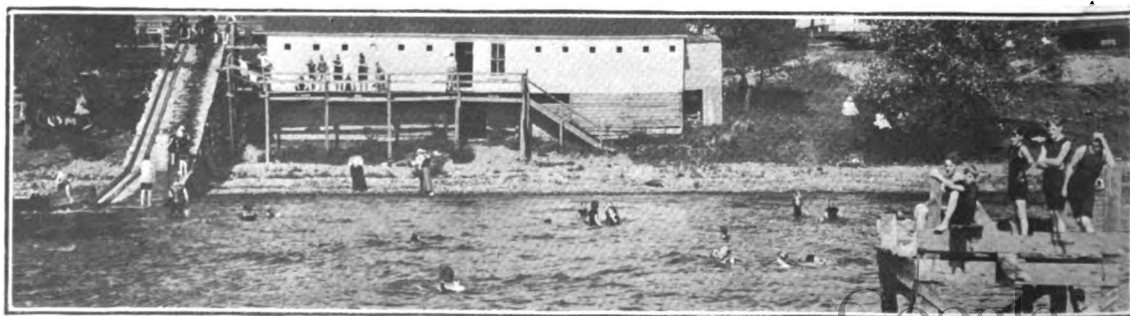
I don't think so.

Have you any idea where he can be located?

No.

The majority of our employees will not need to have their attention called to this method of answering the telephone.

As to the others—we'd better not reflect on their intelligence by trying to make the point clearer.

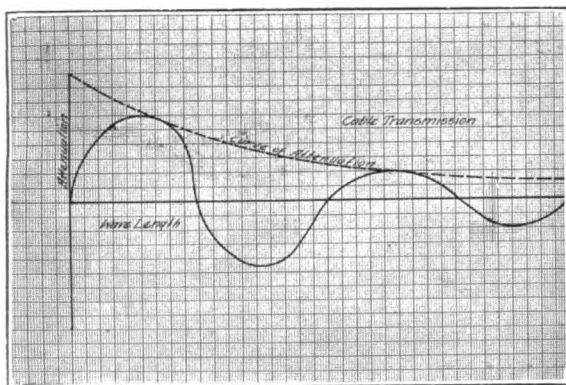


The Recent Progress in Transmission

(Continued from Page 1.)

of the telephone speech currents the more readily they will utilize this medium and the more dissipated will be the telephone current.

FIG. 1.



I thought I could not present the effect of this factor better than by assuming that it did not exist and estimating the increase in the range of transmission that would be thus made possible. The figure hereunder shows this limitation:

FIG. 2.

	Present Limit.	Limit assuming no electrostatic capacity.
#19 gauge cable.....	30 miles	130 miles
#8 B. W. G. copper wire.....	1600 miles	3500 miles
(non-loaded)		

Loading of Cable and Open Wire Lines

The above figures indicate clearly how detrimental to transmission is the effect of capacity. Some means were necessary to overcome this effect, and the answer came in the form of the process known as "loading." It is interesting to note that as early as 1885 Oliver Heaviside had indicated the beneficial results that could be obtained if telephone wires had a larger amount of inductance than they have. He did not show how telephone wires could be made to have a larger inductance. It remained for Pupin to show us the manner how this could be accomplished in 1900.

We owe to Pupin the following basic ideas:

1. The loading coil—which is an inductance coil—having a closed magnetic core of soft iron.

2. The idea that a non-uniform line made of a uniform line and loading coils inserted at regular intervals depending upon the constants of this uniform line and the amount of loading desired to secure, could be made the equal of a uniformly loaded line, theoretically ideal line, when every foot of line has the same constants as the preceding and succeeding sections of the line of the same length. He not only gave us the tool but showed us how to use it.

Increase in Efficiency of Telephone Circuits Due to Loading

The figures summarized indicate the increase in efficiency which it has been possible to secure with various types of cable and open wire circuits:

FIG. 3.

	Attenuation Factors.		Increase in Efficiency.
	Non-Loaded.	Loaded.	
1. Cable Circuits			
19 gauge (.080)	1.216	0.31	390%
16 gauge (.072)	0.800	0.19	420%
13 gauge (.072)	0.577	0.13	440%

2. Open Wire Circuits.

No. 10 B. & S.	0.080	0.035	230%
8 B. W. G.	0.035	0.015	230%
8 B. W. G. phantom	0.029	0.013	220%

The percentage figures indicate also the increase in the range of transmission due to loading.

Application of Loading in Territory of Bell of Pennsylvania and Associated Companies

The use made of the loading in the territory of our Associated Companies is shown on Fig. 5. It may be of interest in this connection to note that the total amount of loaded cable circuits in the United States is estimated at 170,000 pair miles, including the loaded cable plant in use by the A. T. & T. Co.

Bell Telephone Co. of Pennsylvania and Associated Companies
(Exclusive of A. T. & T. Co.)
Loaded Cable Plant in Pair Miles.
Aerial, Underground and Submarine; Light and Medium.
Physical Side and Phantom.

FIG. 4.

Cities and Suburbs.				
Philadelphia, Pa.	340	4,960	5,780	11,080
Pittsburg, Pa.	760	2,650	3,280	6,690
Baltimore, Md.	90	220	1,330	1,640
Washington, D. C.			300	300
Scranton, Pa.		910		910
Atlantic City, N. J.	140	210	140	490
Allentown, Pa.		70		70
Wheeling, W. Va.			180	180
Chesapeake Bay Submarine Cable, Md.	80			80
Totals	1,410	9,020	11,010	21,440

Statement of Progress Achieved

The progress in transmission made during the last two or three years consisted in:

1. The development of the duplex cable.
2. The development of phantom loading coils for open wire and cable work.
3. The development of porcelain insulators.
4. The loading of submarine cables.

Each of the above items represents an important advance in the art involving a considerable amount of engineering skill and ability. The development of the porcelain insulators represents the real progress made in the extension of the transmission range, while the other items are more significant from the standpoint of better utilization of materials.

In addition to the above the telephone repeater is forging ahead and improvements in the efficiency of our substation apparatus appear certain of realization.

Duplex Cable

The "duplex" or "phantom" cable is a cable in which the individual conductors are not only twisted together to form a pair, but the cable pairs are twisted together two by two to form a phantom. The two pairs which are twisted together are termed the "side circuits." The two side circuits are given different lengths of twist. The length of twist of a phantom circuit is also different from the length of twist of either one of its two side circuits.

The New York-Washington cable is the most important duplex cable from a historical point of view. In point of order of priority the first loaded duplex cable installed in the United States was the Boston-Neponset cable. The Pittsburg-Monongahela cable came next. The Baltimore-Ellicott City cable will be the third and the New York-Washington cable the fourth. The sizes and characteristics of these cables are as shown on attached table.

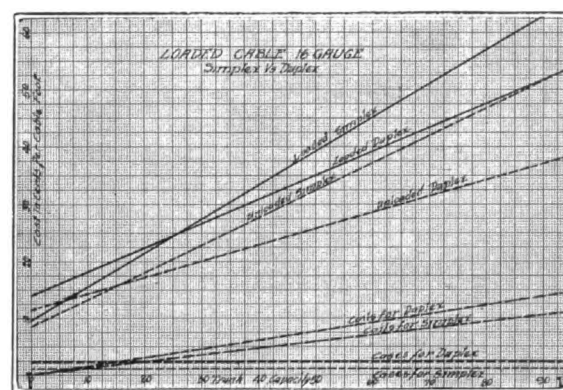
FIG. 5.

	Length of Cable	No. of (Physical) H. G. Circuits	No. of loaded circuits	Total Capacity of Cables
Boston-Neponset Cable	5	72	90	108
Pittsburg-Monongahela	18	28	42	42
Baltimore-Ellicott City	11	46	46	69
New York-Washington Cable.	225	74	48	99

The use of a duplex cable enables us to obtain 50 per cent. more pairs in the same lead sheath than is possible with ordinary cables.

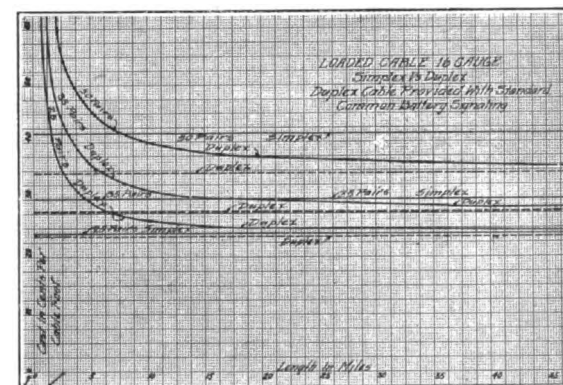
We cannot, however, secure, for the same total number of circuits, a saving of 33 per cent. in first cost, as it is necessary to load not only the side circuits but the phantoms as well. The phantom loading coils cost more than the ordinary loading coils as they have to be made more efficient. In addition to the above when standard common battery supervision has to be furnished over the cable, special composite signaling apparatus is required which still further increases the cost.

FIG. 6.



The attached sketches show just what economy may be expected under present conditions. If common battery supervision is required and No. 16 gauge conductors may be used, it does not seem that much economy may be secured if the total number of circuits is less than thirty-five. For No. 13 gauge cable this limit of economy would be lower and higher in the case of No. 19 gauge cables.

FIG. 7.



We hope that the A. T. & T. Company will design soon standard sizes of loading pots which will contain side circuits and phantom coils in a single case, and which will reduce a good deal the extra cost of the loading. This was done in the case of the New York-Washington cable. We are almost certain that new types of equipment will be available within the next three or four months, cheaper than the present composite signaling apparatus. When these two desiderates are satisfied we will be able, no doubt, to realize important economies through the use of the duplex type of cable.

Before a duplex cable is spliced through, it is necessary to make special balance tests on every

(Continued on page 8)

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic District. The members of the United States Life Saving Crew at Sea Haven have built a line from Sea Haven to Beach Haven and will be connected with our exchange at the latter place on a Plan "A" rural contract. The station is one of the most isolated along the New Jersey Coast and is located at a point considered by mariners as one of the most treacherous between Sandy Hook and Cape May. The families of the crew members reside in the adjacent towns of Tuckerton, Manahawkin and Barnegat, but because of the importance of the station they are not able to visit them except at rare intervals during the season. This telephone connection will afford daily "visits," and the members are anxiously awaiting the establishment of the service.

Telephone service at Longport, New Jersey, which is located on the extreme lower end of Absecon Island, eight miles from the Atlantic City central office, has been changed from magnet to common battery. In order to give a standard grade of transmission, it was necessary to erect four miles of 50-pair composite cable; consisting of 30-pair, 16-gauge and 20-pair, 13-gauge, and to pull in four miles of 200-pair composite cable, consisting of 150-pair, 19-gauge, 30-pair, 16-gauge and 20-pair, 13-gauge.

The placing of the heavy gauge aerial cable made it necessary to reconstruct portions of the present pole line, and strengthen all the corners by placing additional guys. As the major portion of the soil at this location is low, and either sandy or "salt marsh," it was not possible to set poles in the ordinary manner. These poles were placed by using fire hose connected to street hydrants, and by the means of a jet placed into the soil washing out a hole the necessary depth, in most cases ten feet, in which the pole was set.

The setting of poles by water pressure is the only practical way in which they can be set in low sandy soil, on account of water and sand washing in hole as soon as it gets below the water line.

GUENTHER.

Bridgeton Sub-District. We have suffered heavily from electrical storms in this section recently. In some cases telephones were put out of service faster than the trouble could be O. K.'d. On one line of 12 subscribers a trouble man repaired every telephone on the line, and by the time he got back to the office every one again was out of order.

The new poles for stringing 25,000 feet of cable between Bridgeton and Shiloh have been erected and messenger is being strung ready to pull the cable. This is entirely for farm multi-party lines. At Penns Grove N. J., 500 feet of underground is being laid.

LORE.

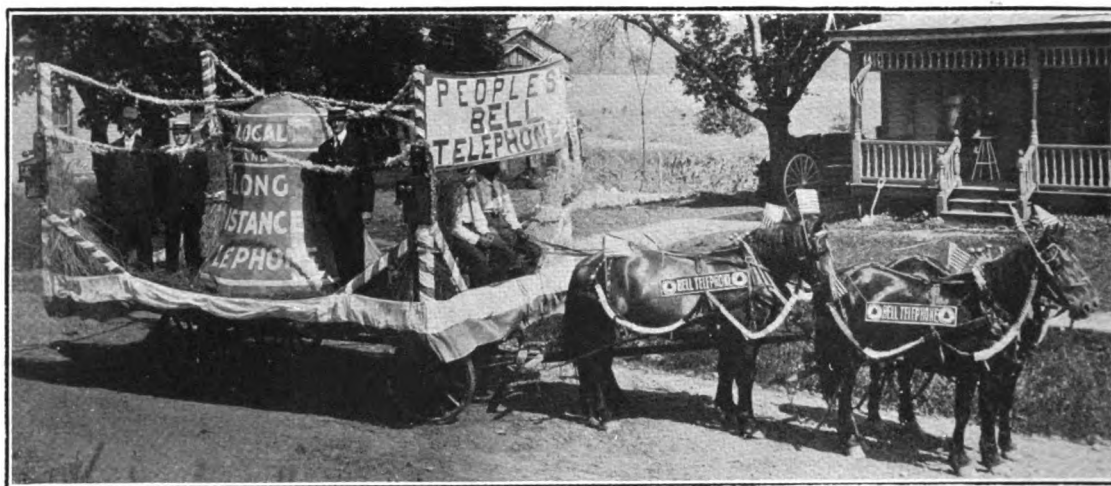
Camden District. The following letter has been received from a Haddonfield subscriber:

Due to the fact of my leaving Haddonfield permanently I regret to advise that I shall have no further need of my telephone after Friday, July 28.

I wish to thank you for the very excellent and courteous service extended to me as a subscriber by your operators at all times. Through all the year and a half I have had the telephone, I have had no errors to correct in my bills and have had perfect service, both in and out of town.

CROXTON.

Dover District. If anyone has the impression that country merchants in lower Delaware cannot calculate it would be well to revise that



opinion in view of a discussion enjoyed by a salesman in that section. The storekeeper was of the usual type, and when approached concerning telephone service, surprised the salesman by readily admitting that there might be some advantages derived. However, the merchant said it would be just as well to get down to business and see if the telephone could be proved to be worth what we claimed for it. He took the rate of twenty-four dollars per year, quoted for multi-party business, and found that the expenditure of that sum was equal to the interest on \$600 at four per cent. He figured that he could borrow that sum and invest it in goods to increase his stock. Figuring a net profit of 20 per cent. he showed \$120 derived from turning over the stock once. He believed he could sell it three times easily during the year, possibly more, making a net profit of \$360. In other words, he asked whether with the telephone he could sell \$1,800 worth of goods more a year than he could sell without it. The figures were all right, but the salesman reminded him that he would still owe \$240 to be paid back to the lender with interest, and that he would have to sell the goods twice more to get back to the starting point, where he would be even with no profit or loss. The merchant decided to take the service.

PRINCE.

Trenton District. Within the past two weeks two car loads of cable have been received at the Trenton office, consisting of

3410 ft.	600-pair cable
10344 "	300- " "
2000 "	240- " "
8350 "	60- " "
1850 "	30- " "

This is to be used to take care of the development around the outskirts of Trenton, where there are about 700 houses being erected.

At 7.40 P. M., August 2, fire broke out in the offices of a publishing company occupying the floor below the Central office quarters at Burlington N. J.

The operators first observed smoke coming up the stairway and, on investigating, discovered that a paper baling machine in a room directly beneath the switchboard was on fire.

The operators rang the street police alarm, and telephoned at once to an adjacent cigar store for assistance. Meanwhile one of the operators, Miss Haley, emptied a chemical extinguisher on the blaze, and W. L. Gauntt, of the Plant Department, arriving shortly afterwards aided in the work with a second extinguisher.

Through the prompt action of these employees the fire was finally smothered, and comparatively no damage to the building resulted.

GARWOOD.

An Attractive Rural Display Float

Edinboro, a small town in Erie County, is the home of the Peoples Bell Telephone Company, a Plan "A" organization having 270 subscribers. During the latter part of June an Old Home week celebration was held in Edinboro. A big parade was one of the features, and men most interested in the welfare of the Peoples Company did not wish to be found wanting when the marching began. So Joseph Taylor, manager of the company, assisted by District Salesman Sarver and Local Manager Knott, devised a float to represent the Peoples Company. The planning sought to bring out three phases of the telephone business:

(a) The farm represented by the wheat sheaves.

(b) The Peoples Bell Company given prominence by signs.

(c) Bell connection shown by the familiar Blue Bell.

The fact that each telephone set on the float was "alive" with bells ringing and conversations being carried on over the wires strung about the corner posts, attracted much attention from spectators along the route of the parade.

The impression made by the float may well be judged by the fact that the Peoples Bell Telephone Company was awarded first prize for its contribution to the parade.

Phantom Circuits

The Engineering Department has issued, under date of June, 1911, Specifications 3725—"General Specifications for the Installation of Phantom Circuits."

These specifications have been printed in standard handbook form, and are based on the A. T. & T. standard specifications and instructions for phantom circuits and various information which has been gathered from the experience of our Companies in previous installations of this kind of circuit.

The first few pages of the specifications are devoted to general description and the various rules to be followed in the selection of circuits which are to be used in making up the phantom circuits. Then follow the transposition layouts for the two different systems—the standard and the A-B-C systems of transpositions—and the methods to be followed in applying these layouts under various conditions. The latter part of the book gives the details of cutting in the transpositions and the arrangement of the necessary central office apparatus in the offices for the proper working of the phantom circuits. It is thought this book will be of considerable help to the men in the field.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

Allentown District. An application has been obtained for telephone service for a camp along the Delaware River road, composed of a number of business men of Easton, Pa. Each tent in this camp is equipped with electric lights and by telephone service, and they are in a position to keep in touch continually with their offices in Easton.

During the past three weeks four applications for service were obtained at Bethlehem through slips from "Suggestion Books" turned in by Plant men.

A request for telephone service was received a short time ago from a passenger train conductor of Lehigh, Pa. A salesman called at his residence several times, but was unsuccessful in finding him. He inquired what time his train passed through Bethlehem, boarded the train at this point, obtained his signature to an application and a check for six months' advance rental while going to Allentown on the train.

During the past week a commercial representative from the Bethlehem, Pa., office made a trip through the territory covered by the Lower Saucon Telephone Company (a connecting company). A subscriber with whom he was talking regarding the value of his service informed him that he had sold his entire crop of strawberries and raspberries by telephone this season.

A local expressman called at the Easton Commercial office to have his telephone disconnected, claiming that he did not obtain any business through it because his daughter refused to go downstairs in the early morning to answer the calls. A suggestion was made to put an extension set on the second floor, and it resulted in retaining the telephone and adding an additional station.

T. D. Hinkle, a subscriber of the Lower Saucon Telephone Company, was held up by a highwayman while on his way to Bethlehem. Instead of complying with the demand for money he whipped up his horses, drove to the nearest telephone and called up the Police Department of Bethlehem. Two detectives were immediately placed on the case with the result that the highwayman was captured the following day.

Out of eight orders obtained in four days in Bethlehem, six were for direct line service.

The superintendent of a local insurance company took exception to our notifying him that his service would be interrupted if he would not pay his bill promptly. The Local Manager visited him and in entering the office saw a card displayed giving notice to his agents as follows: "All premiums on policies not paid on which four weeks are due must be lapsed." The superintendent stated to our Local Manager that he was good for the amount due us and thought we should make an exception of his case. The Local Manager asked whether he made exceptions to the rule which he saw on the outside of his banking counter. The superintendent paid his bill without any further argument.

The Allentown Hospital has applied for a private branch exchange, 2 trunks and 17 stations, to replace a private intercommunicating system.

Harrisburg District. During the month of July the Eastern Perry County Telephone and Telegraph Company removed its exchange from Duncannon, Pa. This company is an opposition sub-licensee. It has at the present time but two stations in Duncannon, which are now being operated from the Marysville, Pa., exchange, nine

miles east. This result was brought about by an active canvass made by the Perry County Telephone Company, a sub-licensee of the Bell Telephone Company of Pennsylvania.

Scranton District. The Delaware & Hudson R. R. Company has signed applications covering the installation of two booths, to replace the automatic pay station in their passenger station at Scranton.

A new attended pay station also has been established in the D. L. & W. R. R. Company's passenger station, Scranton, consisting of a bank of three booths, two stalls and an operator's switchboard.

About one year ago the Company contemplated building a line to serve the residents of Crystal Lake and Dundaff, connected with the Carbondale central office. Due to the various difficulties, we were unable to complete it until a few weeks ago. Pay stations have now been established, and the opposition service is practically abandoned. The residents of Crystal Lake are immensely pleased with the improvement.

A Carbondale subscriber moved from one address to another, but did not request the removal of his telephone. He disconnected the instrument at his old location and tried to reconnect it at his new address, but was unsuccessful. He then notified the central office. When asked why he had not requested our Company to make the change for him he replied that he only received one day's notice to vacate his premises, and as his contract stated he was responsible for the instrument he was afraid to leave it in the empty house. Upon being told it was necessary to sign a form to have an instrument changed, he regretted his ignorance and gladly signed the necessary paper.

An exceptionally good job has been accomplished by one of the salesmen in the Scranton office. By persistent energy he succeeded in re-signing 16 out of 18 subscribers who had been enjoying service at an obsolete rate.

York District. A salesman at the Lancaster exchange has succeeded in superseding the service of the Young Men's Christian Association from a combination line and an extension set to a direct line with a monitor switchboard and four extension sets.

The Kissel Hill Rural Line, which was signed for service on the Lititz exchange three weeks ago, was completed and connected with the exchange August 4.

A Government Display

July 9 marked the opening in the Union Building at Washington of a most unique and interesting exhibition of labor-saving devices and equipment. The exhibition was primarily for the benefit of government departments, but certain days were set aside for the public, and it was visited by hundreds of local business men.

This exhibition was arranged by the newly organized President's Economy and Efficiency Commission. This Commission was created under act of Congress for the purpose of placing the government departments on a more economical and efficient basis.

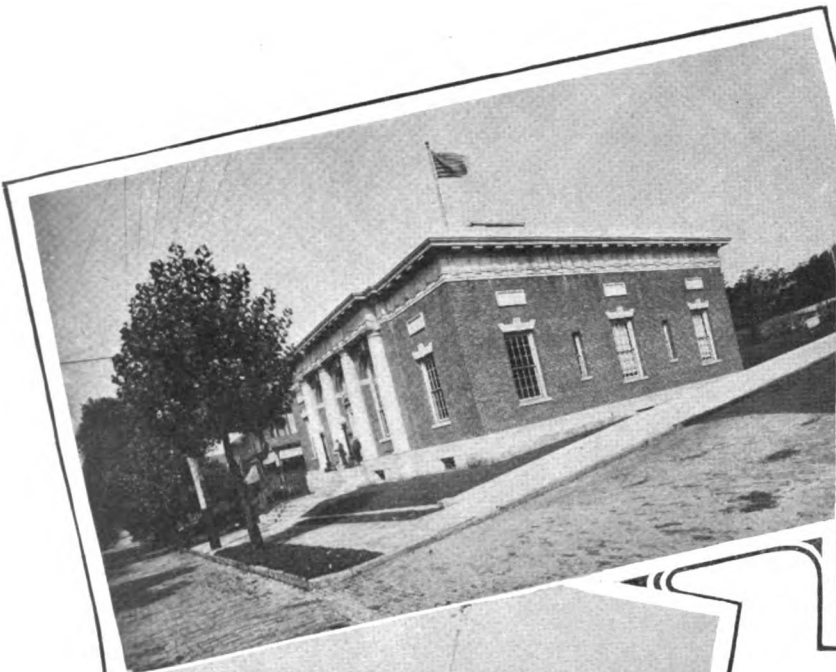
That the new commission was alive to the value of modern methods was speedily demonstrated to this Company, for one of its first acts after taking possession of its new offices was to provide for the installation of a complete private branch exchange system.

During the early part of June a circular letter was sent out by the Commission setting forth its intention to hold an exhibition of labor-saving office appliances, machinery, and so forth. This letter was sent out to manufacturers and supply houses all over the country. It outlined the purposes of the exhibition and invited the manufacturers to exhibit their wares. In all, 120 companies of national importance applied for space. These companies vied with each other to exhibit samples of their finest and most modern products.

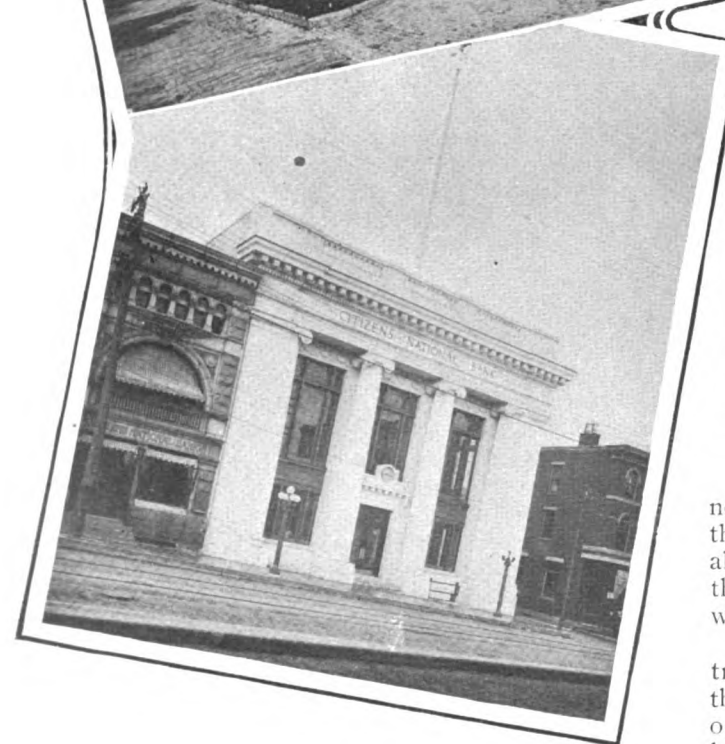
The Chesapeake and Potomac Telephone Company being invited to exhibit, arranged for the installation of a standard private branch exchange switchboard with 5 trunks and 80 stations. Sixty of these stations were equipped with collection devices and the remainder with standard desk sets. The services of a switchboard operator were furnished by the Traffic Department, while the Commercial Department placed one of its salesmen in charge of the exhibit. A space about 10 feet square was enclosed by a railing, and inside this space were disposed monitor boards, No. 2 private branch exchange switching devices—in fact, practically every type of equipment used by the Company. The color scheme observed throughout was, of course, the standard Bell blue and white. The visitors manifested much interest in our exhibit and a large quantity of advertising matter was distributed. The exhibition came to a close July 15.

The
Company's
Booth
in the
Government
Exhibit
at
Washington





Thompson Memorial Library
A Part of Washington and Jefferson College



Upper: Federal Building, Washington, Pa.
Lower: Citizens' National Bank Building

"Little Washington, U. S. A."

(Continued from page 1)

solved, That large industrial plants can exist without saloons," and seems to have proved its side of the contention. During the time Washington has been "dry" its population has increased 150 per cent., while that of some of its "wet" neighbors has dwindled. Truly enough, this may not be attributed entirely to the absence of rum, but it is pretty good proof that big industrial plants can flourish without its questionable aid.

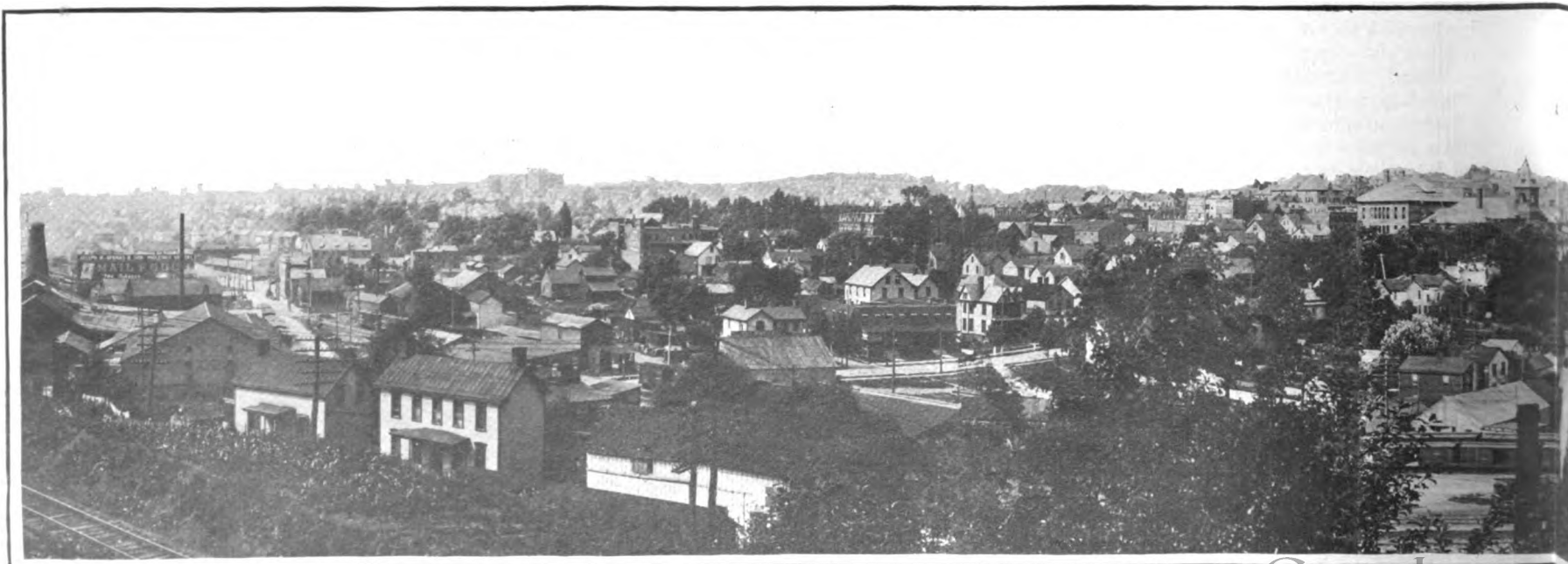
Washington has many other big industries besides the Jessop concern. For one thing, the Mason fruit jars, which stand on cellar shelves throughout the length and breadth of the land, were made in Washington—all of them.

A glance at the more romantic aspect of the city may prove interesting. Here are some of the facts:

Back in 1766, the Reverend Charles Beatty learned from a certain Indian, who

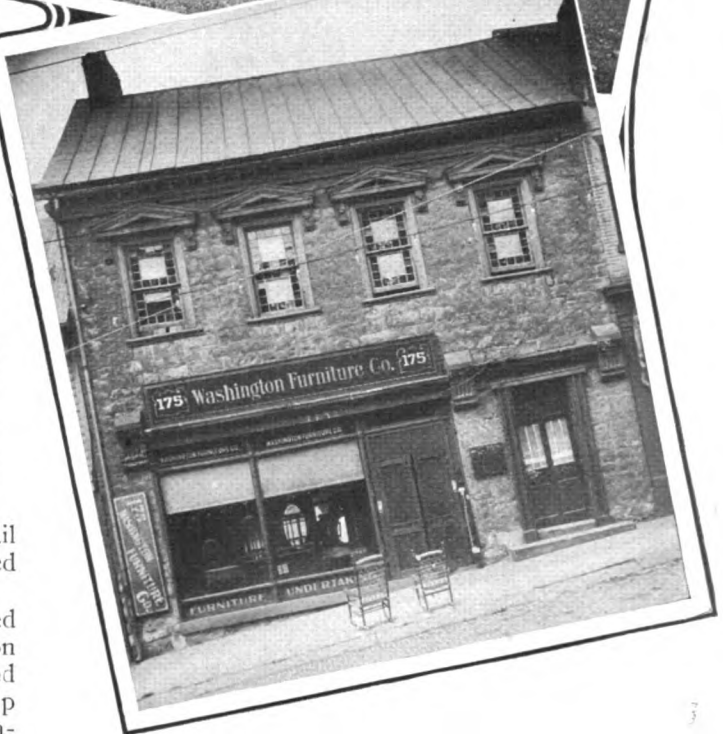
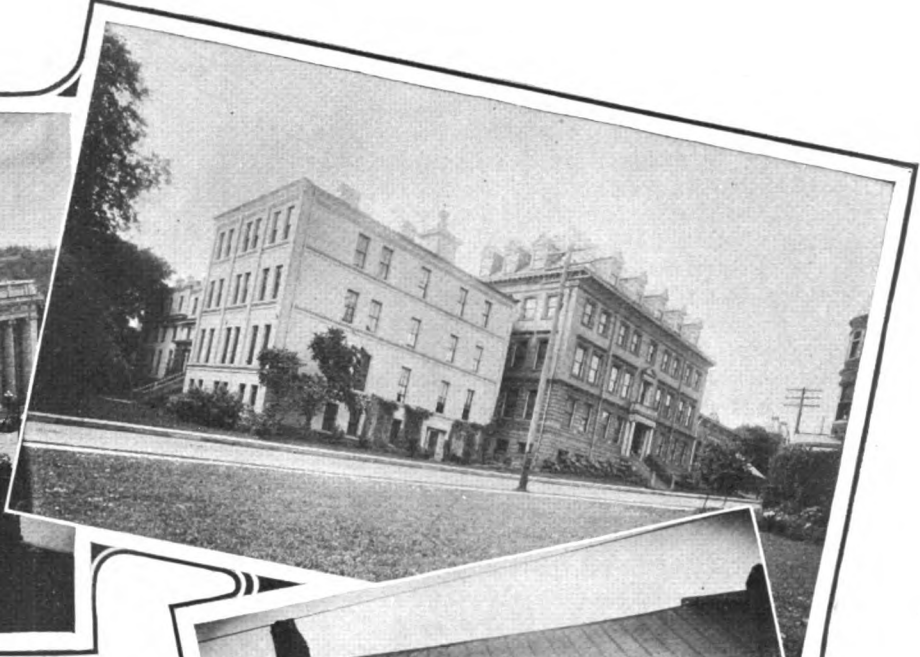
was considered a reliable source in those days, that the coal deposits under Washington "had been burning almost a twelve-month." It took just two years for William Penn to learn what Beatty had heard. In 1768 Penn and his cohorts made a deal with the chiefs of the Six Nations, and for certain considerations (among them numerous odd-looking trinkets) the whole of Pennsylvania's bituminous coal fields, except a few thousand acres near the site of Kittanning, was turned over to William Penn. Penn made a little map and sold "rights to dig" at 30 pounds sterling. A number of people are to-day taking coal out of these same holes, and the leases run back to the original "rights to dig."

In October, 1781, David Hoge organized a land company which sold good, bad and indifferent lands to unsuspecting investors. Lot No. 154 was sold to Dorsey Pentecost. This transaction is not alone interesting on account of the fact that a swamp changed hands, but the clever Hoge dated the deed at "Washington Town," and this is about the earliest oc-





Washington Trust Building
The Bell Company's Offices on Third Floor



Upper: Seminary Buildings, Washington, Pa.
Lower: Birthplace of Mrs. Rebecca Harding Davis
Oldest House in Washington

casion on which the word Washington was used in connection with the locality.

Probably the biggest thing in the line of house parties that ever took place along the route of the National pike occurred in Washington on the evening of June 20, 1797. Doctor Absalom Baird, a distinguished citizen, was the host, and the guest of honor was Louis Phillipe, later King of France. The father and two brothers of Louis were also in attendance.

Washington College was granted a charter March 28, 1806. In 1869 this institution was consolidated with Jefferson College. The latter was brought over from Canonsburg, a few miles away. The Phi Gamma Delta fraternity was started at Jefferson College, and Phi Kappa Psi originated at the Washington institution. Today Washington and Jefferson College is a thriving institution about equal in size to Amherst.

Philadelphians opened a bank in Washington July 31, 1809. John Neal, grandfather of Mrs. Benjamin Harrison, was the first cashier.

Joseph Albert Wright, who at different times was Governor of Indiana, Minister to Prussia and a United States Senator, was born in Washington April 17, 1810.

Martha Latimer and Daniel McCook were married in Washington on August 1, 1818. Years later Mrs. McCook persuaded her husband and ten sons to enter the Union Army, where they gained an international reputation as "The Fighting McCooks."

In 1818 the first United States mail coach to travel the National pike passed through Washington.

George Black, of Washington, invented the stogie. Black kept a tobacco shop on South Main street. One day he announced that "in response to the demand for a cheap smoke made by the waggoners of the National road" he had devised something that was cheap and would not bite the tongue.

In those days people seem to have had the same old formula for christening rolling stock as is used to-day by the makers of Pullman railway cars. They christened

(Concluded on page 11)



The Recent Progress in Transmission

(Continued from Page 3)

section of cable approximately one thousand feet long. Under present conditions in the manufacturing of duplex cables, the unbalances between phantoms are remarkably low. The tests referred to above are made in order to reduce the capacity unbalances between a phantom circuit and its own side circuits.

I will not describe these tests although they are very ingenious in nature. The attempt was made at Boston to reduce, if possible, the capacity unbalances between a phantom circuit and its own side circuits to less than 150 micro-microfarads for every two thousand feet of cable.

The Boston-Neponset cable, as shown on Figure 5, had a length of approximately five miles. The results of the cross-talk tests subsequently made in connection with this cable showed that, while this cable would be commercial, still it was an open question whether the same procedure applied to a cable three times longer, such as the Pittsburg-Monongahela cable, would be satisfactory. The tests which were made in connection with the Pittsburg-Monongahela cable, under the supervision of Mr. Tuttle of the Engineering Department, were somewhat more elaborate than the tests made with the Boston-Neponset cable. In Boston the splicer picked up any two pairs at random, and the man in charge of the tests made the very best of the choice. In Pittsburg we made a complete determination of the unbalances either way, and tried to secure the very best balance taking the cable as a whole. The results of the two methods of procedure are shown on the attached table.

FIG. 8.

Comparative Results. Cross-talk Tests

	Maximum Cross-Talk	Average Cross-Talk	Minimum Cross-Talk
1. Phantom to Side Tests			
Boston-Neponset Cable	1400	800	480
Pittsburg-Monongahela Cable	1400	725	100
2. Phantom to Phantom Tests			
Carrick C. O. End	800	215	0
Monongahela End	700	69	0
Average—Both Ends	800	142	0
3. Physical to Physical Tests			
Carrick C. O. End	800	39	0
Monongahela End	1000	24	0
Average—Both Ends	1000	32	0
4. Side Circuit to Side Circuit			
Carrick C. O. End	800	146	0
Monongahela End	1000	226	0
Average—Both Ends	1000	186	0

The figures summarized under headings "2," "3" and "4" cannot, unfortunately, be compared, due to lack of information, with the corresponding figures for the Boston-Neponset cable. I might add, for the proper understanding of the above figures, that the cross-talk obtained with our loaded toll cables varies between 150-200 units as an average. Two points are therefore clearly established with present types of duplex cables made by the Western Electric Company—

A. The cross-talk, between phantoms and their own side circuits, obtained with duplex cables is considerably higher than the cross-talk between physical pairs with simplex or ordinary cables designed for loading, even if the utmost care is exercised in securing the best balance.

B. The cross-talk between physical pairs in a duplex cable is on an average

considerably lower than with the cross-talk obtained under similar conditions, with ordinary cables designed for loading.

Our tests also show that it is not profitable to attempt balancing a section of cable longer than 8-10000 feet. We expect that the Western Electric Company will in the future be able to manufacture better balanced duplex cables, so that part of the field work may be eliminated and the cross-talk between phantoms and their side circuits reduced to better figures.

New York—Washington Cable

The New York-Washington cable is an engineering feat of the first magnitude. When completed from Washington to Boston it will be the longest telephone cable in the world. It will be a composite duplex cable containing seven quads of No. 10 B. & S. gauge located in the central portion of the cable, six of these quads forming a layer around a solitary quad in the center; six pairs of non-duplexed No. 13 B. & S. gauge conductors located in the interstices of the No. 10 B. & S. gauge pairs, 18 quads of No. 13 B. & S. gauge pairs arranged in a concentric layer around the central layer of No. 10 gauge quads, and 18 non-duplexed pairs of No. 16 B. & S. gauge conductors located between the interstices of the No. 13 gauge quads and the lead sheath of the cable. There will be, therefore, a total of 74 physical pairs in the cable, and it will be possible to secure 99 circuits, including the phantoms. The entire number of No. 10 B. & S. gauge quads and one-half of the No. 13 B. & S. gauge quads will be loaded throughout the entire length of the cable between Philadelphia and Washington. It is expected that this cable will be cut in service some time in November or December of this year. The section between New York and Philadelphia will be installed sometime in the summer or fall of 1912.

The phantom and the side circuit coils will be enclosed in a single case, there being three loading coils in a horizontal row, one phantom loading coil and its two side circuit loading coils associated together.

The type of loading will be medium-heavy. There will be 97 loading points between Philadelphia and Washington. The average mutual electrostatic capacity of the cable will be .070 per mile. To those that are scientifically inclined, I might state that it will take fully 2/100 part of a second for speech currents to travel from New York to Washington over this cable.

The transmission efficiencies of the different gauges of conductors in this cable will be as follows:

FIG. 9.

	Transmission Equivalent in Miles of No. 19 Gauge Standard Cable.
No. 10 B. & S. gauge phantoms	13.6
No. 10 B. & S. gauge side circuits	16.2
No. 13 B. & S. gauge phantoms	21.6
No. 13 B. & S. gauge side circuits	28.5

The above figures are estimated figures but will no doubt be found correct within less than 3 or 4 per cent. when the cable is pulled up and transmission tests are made. The No. 10 gauge loaded phantoms and side circuits will be found useful in completing calls between Washington and New York and between points in the suburban territory around the cities.

The No. 13 B. & S. gauge phantoms will be found useful in completing calls only from downtown offices in the terminating cities and for traffic between the intermediate points and either one of the terminating points. The No.

13 B. & S. gauge side circuits will be of use between the intermediate points and either one of the terminating points. We expect to make use of a few of the high grade pairs in this cable for bringing in our long haul circuits from the Diamond State into the Philadelphia toll board, and also certain intermediate toll points into the Baltimore, Washington and Philadelphia toll boards.

There is no better illustration of the effectiveness of the progress achieved in the development of the New York-Washington cable than this single fact that the No. 10 B. & S. gauge loaded side circuit cable pairs are more efficient from a transmission point of view than No. 10 B. & S. (104") gauge open wires if used between these points.

The significant facts in connection with the New York-Washington cable, from an engineering point of view, are:

1. The development and use of high efficiency phantom and side circuit loading coils.

These coils are naturally more costly than the loading coils which we have been using in our toll and inter-office trunking plant. A real gauge of the economy attained in connection with this work lies in the fact that the cost of the loading represents approximately 25 per cent. of the cost of the cable.

2. The development of a manufacturing method which reduced to less than 50 per cent. of its original value the di-electric losses due to hysteresis in the paper insulation of the cable, thereby increasing correspondingly the transmission efficiency of the cable when loaded.

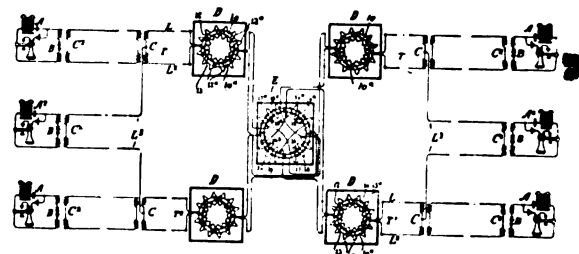
The action of these losses in the cable di-electric is similar in its effect upon transmission as that of poor insulation in connection with loaded open wire lines.

Phantom Open Wire and Cable Loading Coil

The phantom loading coil was a necessary adjunct of the duplex cable. If it were not possible to load phantom circuits, even if these circuits were in No. 10 gauge, they would be of no practical use for either L. D. or toll work, and the duplex cable would lose a very large part of its importance to us.

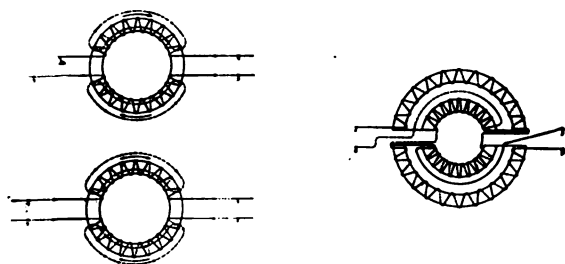
We owe, I believe, the phantom loading coils to Campbell & Shaw. The basic idea involved in a phantom loading coil is extremely simple and yet very ingenious. In Figure 10 is shown the general arrangement used in connecting the phantom and the side circuit loading coils to cable or open wire circuits. The necessity for the use of a special set of coils for loading the phantoms will be clear if reference is made to Figure 11.

FIG. 10.



When two cable circuits, loaded according to present standard methods, are used as part of a phantom circuit, it is readily seen, by following the arrows which show the direction of speech currents through the loading coils, that when

FIG. 11.



talking over the phantom the two halves of the loading coil windings act in opposition, producing positive and negative magnetic poles. The result of this is:

1. A considerable increase in the so-called effective resistance of the coils to speech currents, as the magnetic lines will close themselves through the non-laminated iron of the loading coil case, etc.

2. A considerable decrease in the inductive effect of these windings.

3. Due to the presence of the positive and negative poles, the magnetic lines of force close themselves, partly through air, and certain "stray" lines will close themselves through adjoining circuits, producing objectionable cross-talk.

It is apparent, therefore, that, in addition to producing no "loading" effect over the phantom circuit, there will be a loss due to the stray magnetic fields, resulting in the inter-position of an important amount of resistance at each loading point, so far as the phantom circuit is concerned. Even if there were no additional transmission losses introduced in the phantom circuit, it is still true that there is no inductance or "loading" effect, due to the loading coils in the two side circuits, which make the phantom. A special set of loading coils has therefore to be used to secure the desired loading effect in the phantom circuit.

The possibility of loading a phantom is easily understood, if it is assumed that in a circuit made of two side circuits, each provided with a loading coil, one-half of the loading coil winding in each side circuit is reversed. The effect of such reversal which will be plainly evident, if the direction of the arrows is followed, is to "load" the phantom and "unload" the side circuits. We have in the procedure above described the basic principle involved in the loading of phantom circuits. A phantom loading will therefore have four windings. We will secure the desired result of "loaded" side circuits and "loaded" phantoms by the use of two distinct sets of loading coils,

1. Side circuit coils,
2. Phantom coils.

The presence of side circuit coils is a detriment to the efficiency of the phantom circuit. The presence of the phantom loading coils is a detriment to the efficiency of the side circuits. To reduce the transmission losses due to the simultaneous presence of the double set of loading coils, a new type of side circuit loading coil was designed, which was provided with four windings instead of two—these four windings being associated in such a manner (see Figure 11) as to eliminate the presence of positive and negative magnetic poles. Side circuit loading coils designed in this manner act practically as non-inductive resistance, so far as the phantom circuit is concerned, and are considerably better balanced than the loading coils used in connection with non-duplex cables. To obtain economical and well-balanced phantom loading coil the four windings were combined on a sin-

gle wire. Furthermore, application was made of the same principle as followed out in the design of side circuit loading coils—this application resulting finally in phantom loading coils provided with a single core and eight windings.

The new feature in the balancing of the windings of these coils was absolutely essential to the problem of securing phantom loaded open wire circuits which would be reasonably quiet. If it were not for this feature, the loading of the side circuits in the quadded pairs in the New York-Washington cable would have brought in additional transmission losses in the phantom circuits. As an indication of the real importance of this one apparently small item—if it were not for the invention of this new balancing feature in the windings of the side circuit coils—the loaded No. 10 gauge phantom circuits would have been almost 25 per cent. worse than they will be. The new system of balancing the loading coil windings does also eliminate very largely the cross-talk upon adjoining circuits which would otherwise result.

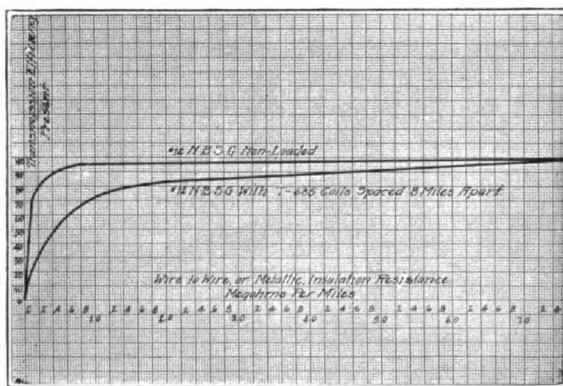
The Porcelain Insulator and Loaded No. 8 Circuits

The development of a suitable porcelain insulator is "in a nutshell" the real secret in the success of loading No. 8 open wire physical and phantom circuits. Here, as in the case of the New York-Washington cable, we see apparently insignificant things producing tremendously big results.

The porcelain insulator used in connection with loaded No. 8 circuits is a double petticoated insulator and has under all conditions of weather an insulation four times higher than the standard glass insulator used with toll lines.

The effect of poor insulation on loaded lines is shown on attached sketch.

FIG. 12.



The effect of the development of the porcelain insulator has been the doubling in the range of commercial transmission. For the last 15 or 20 we were limited to about 1000 miles. The new range of transmission is 2030 miles, the distance between New York and Denver. This circuit is made up of a loaded No. 8 phantom between New York and Chicago, a loaded No. 8 physical between Chicago and Omaha, and a loaded No. 8 phantom between Omaha and Denver. The daily papers published the first commercial test made of this at Montclair, N. J., where circuits from distant points, including the new Denver-New York circuit, were put up for the entertainment of guests invited by the President of our Companies.

The transmission efficiency of this new circuit 2030 miles long will be approximately 29 miles of standard cable, somewhat better than the efficiency of the New York-Chicago non-loaded No. 8 circuits. The new circuit is arranged so it may be cut into sections for use between intermediate points. The transmission on the new No. 8 loaded side circuits between New York and Chicago will be better than the transmission

we now get on certain circuits between Philadelphia and Harrisburg.

Loading of Submarine Cables

It gives me special pleasure to talk about the question of loading of submarine cables, as we have been real pioneers along this line. The installation of the submarine cable across Chesapeake Bay laid the foundation for all future similar work. It was due to the energetic activity and ability of Mr. Cunningham and the prompt and hearty coöperation of the A. T. & T. Co. engineers that we were able to lay the first loaded submarine cable in this country, and that in record time. Our plans for laying and loading a submarine cable were approved by the General Manager in February, 1910, and the cable was put into service in May of the same year. Considerable amount of development work along new lines had to be done during this brief interval of time. I have summarized for your information some comparative figures between the Chesapeake Bay cable and the English Channel cable laid by the British Government between Dover in England and Calais in France.

FIG. 13.

	Chesapeake Bay Cable	English Channel Cable
Resistance (loop) per mile	22 ohms	12.50 ohms
Weight (conductor) per mile	82 lbs.	160 lbs.
Mutual Electrostatic Capacity .....	.085 M. F.	0.12 M. F.
Inductance of Loading Coils .....	.129 h.	0.100 h.
Resistance of Loading Coils	6.50 ohms	6 ohms
Spacing of Coils	2.50 miles	.15 miles
Attenuation constant (loaded) .....	.0164	.0140
Attenuation constant (non-loaded)	1.0515	.0450
Increase in efficiency due to loading	315%	300%
No. of pairs in Cable ..	16	2
Length of Cable	4.65 miles	20

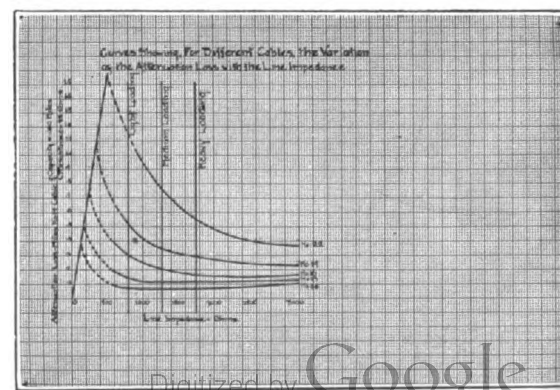
The equivalent of the new cable is 0.75 mile in No. 19 gauge standard cable. The equivalent of the old cable, which was not loaded, was 4.85 miles of No. 19 gauge. The new cable is, therefore, approximately 600 per cent. more efficient than the old cable.

I wish also to call attention to the fact that with conductors weighing 82 pounds per mile we were able to secure the same transmission efficiency with the Chesapeake Bay installation as was secured by the use of conductors weighing almost exactly twice, 160 pounds, with the English Channel cable.

Telephone Repeater

In the telephone repeater, it appears, are certain possibilities of improvement in transmission. There is a definite limit to the range of loaded cable transmission, considering it as an economical proposition. This point is illustrated in Figure 14, which shows that with a given design of loading coils there is a limit which will be reached when any increased inductance intro-

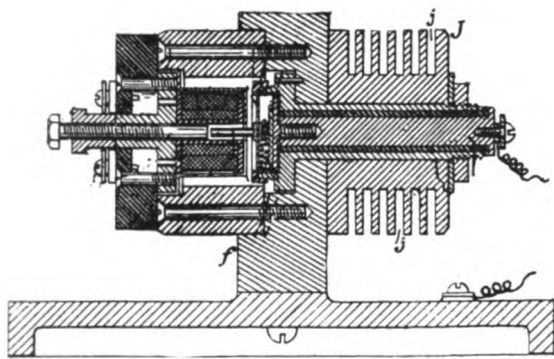
FIG. 14.



duced into a cable or open wire circuit will result in a loss of transmission efficiency. Such a point is reached sooner for the larger gauge cables than with the smaller gauge cables. Considering, therefore, the question from an economic point of view only, it may be stated that there is a definite limit to the range of loaded cable transmission. This limit appears to have been reached with the New York-Washington cable, and therefore other means than loading will have to be resorted to for the economical solution of transmission on longer ranges.

The telephone repeater is of tremendous economical importance, even for local companies. If the telephone repeater was available we could save considerable sums of money in our toll cable plant. (Figure 15.) The difficulty with the repeater comes in with the fact that it has to be a two way repeater, and as a result of this feature carefully balanced. When used on open wire lines inequality in the length of the two sections connected together—will make it "howl." It also appears to "age" rapidly.

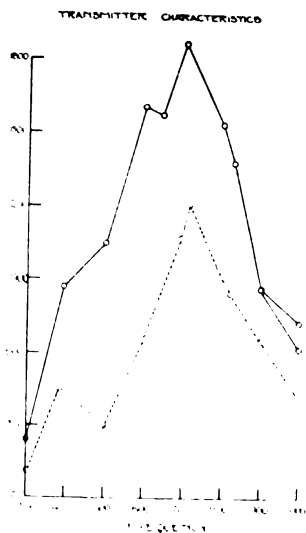
FIG. 15.



SHREEVE RELAY.

The "distortion" of speech due to the repeater is another important factor to be overcome. Figure 16 shows the results of some experimental data due to Bela Gati, Chief Engineer of the Austrian Government Telephone Department. It is noteworthy that there is a predominant tendency in all telephone transmitters to "choke" all telephone frequencies, except a single frequency corresponding to the natural period of vibration of the transmitter diaphragm. This tendency is stronger with the

FIG. 16.



telephone repeater, and results in poor articulation. As a matter of experience, it may be stated that the tendency of a telephone repeater is to "lower" the pitch of conversation held over a line with which the repeater is associated. So far, the successful operation of a repeater has required the care of an expert. But all of these difficulties are being slowly

Washington Division

R. G. HUNT, Division Correspondent

A Washington subscriber complained the other day of the telephone wire being crossed with her dining table bell, causing it to ring continually. An inspector was sent out immediately. He found that the trouble was caused by a friend of the subscriber unconsciously having her foot on the floor push button in the dining room. A polite request to move the foot cleared the trouble at once.

An interesting but anonymous letter has been received at the local commercial office on the subject of "spongers," non-subscribers who habitually annoy acquaintances who are subscribers for telephone service.

"Yesterday," the writer concluded, "we received a request to make a long distance call for the purpose of notifying a woman that a close friend would call *when he had an opportunity*." The following is a code of telephone don't's which has been appearing in New York, Washington and other newspapers:

- Don't gossip over the telephone.
- Don't listen to your neighbor's business if you are on a party line.
- Don't hold the wire for a quarter of an hour when some one else wants it for business.
- Don't telephone your chum just because you have nothing else to do.
- Don't try to break in when someone else is telephoning.
- Don't get into a pet if someone else is on the wire when you want it.

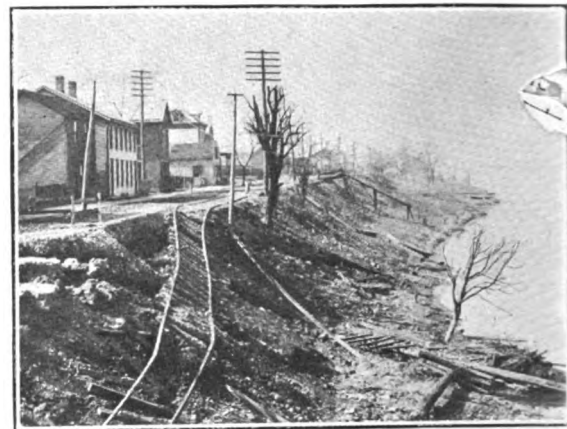
A rising temperature means a drop in efficiency—except with certain people.

overcome, and I am willing to predict, and I believe it is a safe wager, that the telephone repeater will be the instrument by which transcontinental telephony will be realized.

This recent progress in transmission imposes upon us new standards, new duties and a new point of view. If we are to keep up with this progress, it will be necessary for us to build our subscriber distribution plant and our toll plant more carefully than we have in the past. After two years of daily acquaintance with the subject of toll lines and toll cable plant, I cannot state with any degree of conviction that we appear to have displayed even a fraction of the same intelligence we appear to have shown in constantly improving our standards of outside construction of central office equipment, of traffic operating methods or of maintenance costs. The gradual transition of the telephone plant from an all-aerial structure, when transmission conditions were easily met, to an all-cable structure has brought, in a false sense of security, an unconscious feeling that transmission was more or less of a secondary factor. Nothing could be more harmful and deceptive than this feeling.

The energetic initiative of the Chief Engineer of our Companies in 1905 placed the question of transmission in and around Philadelphia along the proper logical lines.

We have been trying for the past two years to live up to the standards of transmission decided upon for Philadelphia by Mr. Spencer,



O. K. Today—Gone Tonight.

Telephone lines on river banks are sufferers when nature flies off the handle. Not long ago the Beaver River pushed 350 feet of our Rochester, Pa.,—Wellsville, O., pole line and a railroad track into the water.

Discontinuance of Second Plant Division of the A. T. & T. Co.

Effective September 1, 1911, the Second Plant Division of the American Telephone and Telegraph Company will be discontinued. Districts Nos. 21, 22, 23, 25 and 26, which comprise the portions of New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Ohio and the District of Columbia within the territory of The Bell Telephone Company of Pennsylvania and Associated Companies, will be transferred to the First Division. The headquarters of the First Division will remain at New York, with L. R. Jenney as Division Superintendent of Plant.

The headquarters of the various districts of the present Second Division, which are to be transferred to the First Division, will remain unchanged.

Mr. Spalding Mr. Driver and Mr. Hayward, and established similar definite standards for Baltimore and Washington. The Pittsburg transmission standards are even higher than the standards adopted for either one of the three other cities I just mentioned. I can also state that with the exception of a few inconsistencies our Pittsburg associates appear to have made a good job of their transmission undertaking. I believe that, so far as local transmission conditions are concerned, taking the four multi-office districts as a whole, we are not only doing as well but even better than New York or Boston.

We are now entering a phase of extension of our main toll cable plant and, purely and simply as a business proposition, this extension and the corresponding extension of the L. D. cable plant calls for a stricter adherence to the indications of our transmission practice. As study is now being made of toll operating methods in our territories and we expect that when the results of this study are available, we will be able to decide upon the toll transmission standards and economical methods of handling this toll traffic.

Before closing I wish to pay a sincere tribute to the splendid work of the A. T. & T. Co. engineers and of the W. E. Company engineers in bringing to a head this advanced step in the practical application of the science to the art of transmitting speech.

Philadelphia Division

D. J. CLEARY Division Correspondent

An unusually exciting game of base ball was played at Ardmore, August 5, by teams representing the Central District and Main Line Plant forces. By an eighth inning rally the "Central" team nosed out a 9-8 victory. The score follows:

Central 0 0 2 0 2 1 0 4 x—9
Main Line... 4 0 0 1 2 0 1 0 0—8

Two-base hits—Deveroux 1, Rambo 1, McGlinchey 1. Three-base hit—McAndrews 1. Double plays—O'Brien to Thomas to McGlinchey. Struck out—By Stuart 9, by Murphy 14. First base on balls—By Stuart 1, by Murphy 7.

The value of the three-trunk system, as used on the desks of the clerks at the Central District office in Philadelphia, was well illustrated by the following incident:

A man recently arrived from Germany, and unable to speak English, called at the office. The employee waiting upon him was unable to speak or understand German, and called an associate by telephone who was familiar with the language. After an explanation of the circumstances the second employee was put in communication with the foreigner, the clerk coming in on trunk No. 2. The matter was soon adjusted, the German signed an application for service and left the office in a high good humor at his experience.

The Central Office has received a letter from a subscriber, enclosing a check for her telephone account, with a request not to make the bill such a "close fit" the next time as she had difficulty extricating it from the envelope.

Another communication, received during the severe trouble caused by recent storms, is amusing and at the same time very much to the point. It is as follows:—

"The Bell Co.—Wats the mater with our B. fone. Can't get connections. What for is the reason of same. Have always paid up many years and wats the trouble now. The Storm of Wed. may caus it, not?"

A local subscriber has written the Company to disconnect his service, giving as a reason that his daughter has just been married and that he has no further use for the telephone. Almost in line with this idea, a Philadelphia newspaper prints the following item:—

COIN, Ia.—Marriage by telephone, with the officiating clergyman in one place, the bridegroom in another and the bride in still another, was made possible here yesterday.

The Rev. H. B. Minton, sitting in his study, united in marriage George Prentice at his home in Northboro and Miss Mary DeWitt in Blanchard. Coin is five miles north of Blanchard, and Northboro, three miles west of Blanchard, is about the same distance from the pastor's home.

The natural presumption is that another subscriber in Coin, Ia., finds his telephone in the "no further use" class.

A physician living near this city, while on an automobile pleasure trip, rounded a sharp turn in the road, overturned his car and was seriously injured. Several farmers witnessed the accident. One broke into a closed residence and telephoned to a hospital. Aid was quickly sent and much suffering and possibly a life was saved.

DREW.

Organization and Territorial Changes

Name	Position	Location
Geo. H. Fulmer	District Manager	Salisbury, Md., to Johnstown, Pa.
C. C. Carty	Agent to Local Manager	Salisbury, Md.
M. Freimark	Switchboard Inspector to Cable Tester	Plant-Phila. to Cable Div.

Pittsburg Division

R. W. Boothe	Assistant Foreman	D. C. Chisholm to R. W. Boothe (Const. Div.)
H. W. Hamburg	Repairman to Installer	Pittsburg Dist. —Grant to Const. Div.
M. J. O'Brien	Lineman to Installer	Plant School to Plant, Pittsburg.
A. Rosecrans	Lineman to Installer	Plant School to Plant, Pittsburg.
W. H. Snyder	Installer to Repairman	Plant, Pittsburg (New Kensington, Pa.)
G. W. Brown	Chauffeur to Machinist	Real Estate Div.
R. M. Nevel	Climber to Assistant Foreman	Butler Dist. (Line Crew No. 1)
W. D. Maloney	Climber to Assistant Foreman	Butler Dist. (Line Crew No. 2)
R. B. McCabe	Groundman to Climber	Butler Dist. (Line Crew No. 2)
E. E. White	Groundman to Climber	Butler Dist. (Line Crew No. 2)
H. G. Mosier	Wire Chief to C. O. Man	Greensburg Dist. (Uniontown, Pa.)
R. S. Cooper	C. O. Man to Wire Chief	Greensburg Dist. (Uniontown, Pa.)

Traffic Department

Ardmore, Bryn Mawr, Wayne and Cynwyd have been added to the Philadelphia Traffic Division and have been made a part of the West Philadelphia District, reporting to Traffic Supervisor C. G. Tatnall (office 52d & Lancaster Ave.).

Traffic Inspector Paul Nicoladsi has been stationed at Bryn Mawr.

"Little Washington, U. S. A."

(Continued from page 7)

wagons "Conestoga," a cognomen fully as appropriate as the appellation usually found on the outside of the most modern "sleepers." Black made his innovation out of one-third the amount of Kentucky tobacco usually placed in a "sigar" and sold them at half price. Worse, he named them "Conestogas." But the consumers didn't like the "sigars" and the name all at the same time, so they clung to the rolls of tobacco and dropped the name, calling them "Stogas" and later "Stogies." All this, however, has been eradicated by the man who nicknamed them "tobies."

Harking back to Washington, it is a live, prospering town. It has accomplished much in the past and will have no excuses to make should it fail to do many times as much in the coming years of its growth.

A Remarkable Telephone Message

In addition to the article from *Collier's Weekly* describing the use of telephones in the Mexican war, which appeared in THE TELEPHONE NEWS of July 1, newspapers and magazines throughout the country have been printing an interesting collection of items on this subject. Among them probably none is more interesting than the following account from *The Pacific Telephone Magazine*:

"During the recent battle between the Mexican Insurrectos and the Federals at Tecarte, Mexico, the report was given to the San Diego Union office by John T. Haley, the Union war correspondent, in a very unique manner. He was giving this report to the office when the hostilities commenced. The opening of the engagement was a single shot, probably fired by a rebel who had discovered one of the Federal scouts, quickly followed by many shots with great rapidity, indicating that a number of each force was engaged in firing. Like the patter of hail against the window came the sound of the battle at Tecarte over the wires of The Pacific Telephone and Telegraph Company.

"I can see the flashes of the guns plainly," shouted Mr. Haley. "I will give you the details of the battle later."

Fifty miles separate Tecarte and San Diego. Probably in all the history of warfare there is recorded no such remarkable instance as the hearing of the sound of battle over a telephone in a newspaper office.

The original of the accompanying illustration, showing plainly the close relation between the Mexican officials and their telephone service, was received a short time ago from H. M. Hawkins, a former Bell of Pennsylvania man, who was engaged in telephone work in that section during the Revolution.



Madero, the Mexican Revolutionist, and His Advisers (Photograph Taken at Juarez, Mexico)

Three 50-line switchboards have been placed in Buckingham Palace, London, for the use of the Royal Family. To prevent conversations from being overheard, private lines have been installed between that Palace and Windsor Castle, to Marlborough House and to the residences of several court officials.

Pittsburgh Division**L. W. GRISWOLD, Division Correspondent**

Pittsburgh District. Construction crews have their troubles. This general statement has been going the rounds for a considerable length of time, and there seems to be a lot of truth in it. Some of the troubles are of magnitude, others are simply annoyances. Here is an experience encountered by a Pittsburgh crew which may be classified as the reader sees fit:

Miss Iva Moore conducts a grocery store adjoining a vacant lot. Miss Moore has an eye out for any real estate advances that might take place in her neighborhood, and as a result keeps close watch on the vacant lot. It happened not long ago that arrangements were made by our Company to set poles on this lot. Miss Moore did not like the arrangements but chose another course than the familiar injunction route. She simply waited until the last spoonful of earth had been removed from the holes. Then she took her very best Morris chair and planted it over the particular pole hole that was the key to the situation. Then she hurried over to Mrs. Ryan's house and induced that woman to occupy the Morris chair. It was explained that since Mrs. Ryan owned the lot and Miss Moore wanted to buy it there was but one way out of the situation. That was for Mrs. Ryan to go and plant herself in the chair. This was done, and for five hours the telephone crew waited while its rights were being determined. Finally a right of way man appeared and showed Mrs. Ryan a voucher covering a payment for the privilege of digging holes. The voucher had been signed several months before.

"Oh, My," was Mrs. Ryan's exclamation. "I forgot all about that, and my breakfast dishes haven't been done up yet."

No mention was made of the fact that a number of good dollars had been lost by the telephone company while Mrs. Ryan was holding the fort. But the crew simply smiled with one accord and went back to building the line.

If one may judge from an advertisement appearing in the Schenley matinee program, "Jim Greene," of McKees Rocks, is a subscriber who believes in telling the essentials and cutting out all the embellishments. He even considers his address irrelevant. This is the Greene advertisement that occupied a quarter of a page:

Jim Greene
Bell 'Phone 457 Victor
McKees Rocks.

Members of the Congressional Rivers and Harbors Committee have been making a trip down the Ohio River on the steamer "Kanawah." The itinerary called for stops all the way from Wheeling, W. Va., to Cairo, Ill. Scarcity of water made unscheduled stops necessary, and a number of towns made elaborate preparations to welcome the guests, only to see the river boat come around one bend and disappear behind the next without even blowing a whistle. A Pittsburgh newspaper in commenting on the trip said: "We can all look forward to 'The Cruise of the Kanawah' as one of the most absorbing tales of overland travel ever written." However, the men who took part in this junket did not suffer the privations of the pioneer because every known convenience had been bolted or screwed to the good ship "Kanawah." Among these improvements was Bell telephone service. Connections were made with the local exchanges in the same manner as is used on the various trade extension excursion trains so familiar to our Company's employees. Nearly every evening the



"'Hould th' wire,' says he. Begorry! Next time he can come here an hould it himself."

Scribner's

boat's telephone equipment was busy until long after midnight. Many of the calls were for Washington, D. C.

Butler District. Facilities for the daily transmission of news from a Pittsburgh syndicate to the Butler *Citizen* were installed July 30, and the plan is proving very satisfactory. This is the first installation of the sort that has been made in the Butler District, but it is expected that several other publishers will adopt the idea within a short time.

One of the largest brick manufactories in this district has recently adopted "Selling by Telephone" methods. A few days ago 800,000 bricks were necessary to fill a single order received over the telephone.

"We have found the telephone as necessary as a clock and would not care to dispense with it," is an excerpt from a letter recently received from a subscriber with whom a little misunderstanding had arisen as to the day for resuming service.

WARRICK.

Greensburg District. A traffic agreement has been signed by the Delmont Rural Telephone Company, operating in Delmont, about nine miles north of Greensburg. A direct pole line has been built and wires strung between Delmont and our Greensburg exchange. The Delmont company has been operating for about a year and is now giving service to about 45 subscribers.

The Farmers' Interurban Telephone Company of Irwin, one of the Plan "A" companies connected with the Irwin exchange, has applied for a charter. This company is an unusually strong one and is now furnishing service to about 50 farmers.

HUGGS.

Baltimore Division**J. R. MOFFETT, Division Correspondent**

This following amusingly sarcastic letter was received in reply to a collection letter that did the work. There was no reason why the check "should not be paid" and the subscriber was duly thanked. This is the letter the Company sent:

It is with sincere regret that we are compelled to again invite your personal attention to above unpaid telephone bill.

We have, in this connection, made unsuccessful effort to reach you personally, and as our delinquent notice covering balance due on current bill has expired, it will be our unpleasant duty to take action in accordance therewith, unless settlement is made on or before July 27th, 1911, which, however, we hope your attention will make unnecessary.

Should there be any reason why the bill in question should not be paid, you will confer a much appreciated favor by advising us at once.

This is the one that "came back:"

It is with my sincere regret that you have been compelled to again invite my personal attention to my unpaid telephone bill.

I am very sorry you have, in this connection, made an unsuccessful effort to reach me personally, and as your delinquent notice covering balance due on your current bill has expired, it would peeve me if you were compelled to take action in accordance therewith, unless settlement is made on or before July 27th, 1911, which, however, I hope will not be made necessary.

Should there be any reason why the enclosed check should not be paid, you will confer a much appreciated favor by advising me at once

BARGER.

Hagerstown District. The Mayor and aldermen of Frederick City have granted the Chesapeake and Potomac Telephone Company the right to lay conduits through the streets of that city.

Martinsburg, W. Va., went "dry" July 1. At the present time (July 1) there are 857 stations working in connection with the Martinsburg exchange.

A woman subscriber at Westminster, Md., ordered her telephone disconnected, stating that she had lost in an investment and wished to cut down expenses. A salesman went to see her and suggested that she keep the telephone and pay a small amount each month until she saw her way clear to pay her bills as before. At the end of the first month the woman called at the company's office and paid her bill in full with pennies which she had saved.

A farmers' line, Plan "A," has been started near Grove Lime Kiln, Md. It will be about five or six miles long and will have about 100 subscribers, who will be connected with our Frederick exchange.

PLANKINTON.

I wonder how many people in this great country of ours know the full value of true courtesy . . . Can't we realize for ourselves that this is an element within us which, if cultivated and practiced, will pay one hundred per cent?—*Annie A. Angell, of Scranton, Pa., Operating Force.*

THE TELEPHONE NEWS

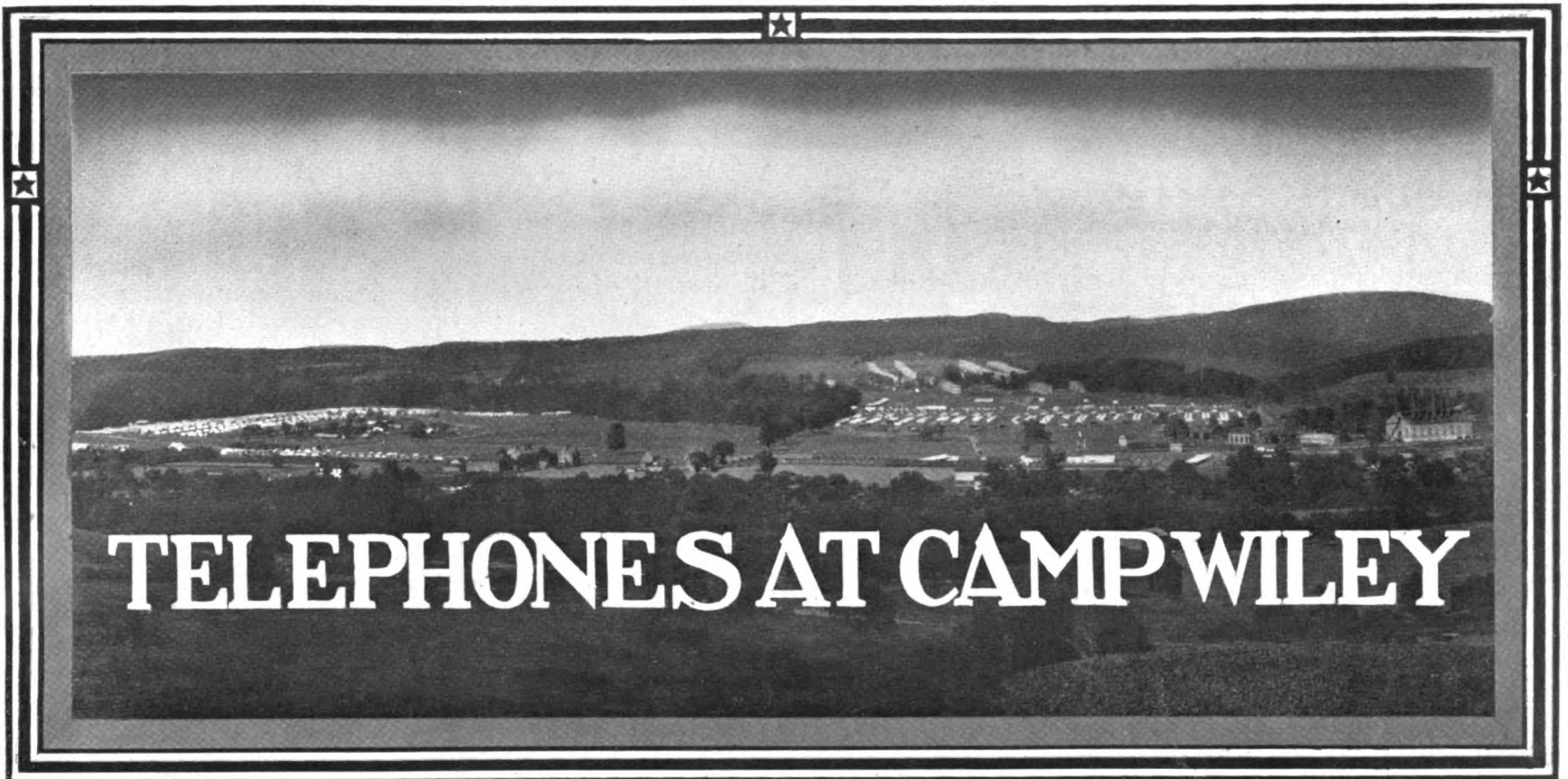


VOL. VII

PHILADELPHIA, PA.

SEPTEMBER 1, 1911

NO. 17



General View of Camp John A. Wiley, National Guard Encampment near Indiana, Penna.

Purchasing Supplies by Telephone for a Brigade of Soldiers.



HOPPING by Telephone, on a scale that would amaze the ordinary patron of a grocery, was practiced a short time ago near Indiana, Pennsylvania. The shopper was Major Corrin, of Oil City, Quartermaster of Camp John A. Wiley. Those for whom he shopped were 3,300 men composing the Second Brigade of the Pennsylvania National Guard. The houses that filled the orders were conducted by merchants of towns not far from the camp site. An average of 50 calls each day was used in shopping by telephone for the soldiers.

Major Corrin had calculated in this manner: At his home in Oil City the housewives shopped by telephone. Why couldn't the orders to grocer, butcher, truck gardener and so on be telephoned from the camp each morning and the deliveries made as soon as a motor truck could make a one-way trip? The Major decided they could, and at once got in touch with Local Manager Clements, of Indiana. So several weeks before the guardsmen went into camp, the telephoning of Camp Wiley was all figured out. That the figuring was a good job is shown by traffic during the ten days and the satisfaction of Major Corrin.

Camp Wiley would be a big patient for any of the Company's local offices. Several prescriptions were necessary, not because the case was difficult to diagnose, but for the reason that several parts of the camp

needed attention at the same time. What the telephone doctor prescribed read like this:

For Shopping;—One standard desk set connected with the Indiana central office by a direct line. Isolated in order that it might be available for the Quartermaster's use at all times.

For Transmitting Military Orders;—One standard desk set connected by direct lines with similar instruments installed in each regimental headquarters. Main station to be placed at the headquarters of the Brigadier General.

For the convenience of the men of the regiment and the public;—Three standard public stations with coin boxes attached. Connected by direct lines with the Indiana central office.

These prescriptions were filled with accuracy and dispatch by the Plant Department, and when the guardsmen arrived in the valley, July 18, the telephones were ready.

During the hubbub of camp making, little puffs of confusion sprang up from time to time, but a telephone message reduced many of them in short order.

As an illustration, a Tyrone trooper had arranged to rent a mount for the ten days that his organization would be in camp. A deal was made with a farmer near Blairsville, who readily promised to be on the grounds with the horse early on Tuesday morning. When the trooper

(Continued on page 6)

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The Telephone News

Published the first and fifteenth of each month in the interests of
 The Bell Telephone Company of Pennsylvania
 The Delaware & Atlantic Telegraph & Telephone Co.
 The Central District & Printing Telegraph Company
 The Chesapeake & Potomac Telephone Company
 The Diamond State Telephone Company



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 To employees of the above Companies - NO CHARGE
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 payable in advance

Vol. VII SEPTEMBER 1, 1911 No. 17

Thoughts on Taylor's "Scientific Management"

"Underworking, loafing on the job, killing time are practically universal," says Frederick W. Taylor in his book, "The Principles of Scientific Management," published by Harper & Brothers. This is only one of a number of interesting assertions made by the author, and excepting possibly the succeeding statement that it is the greatest evil afflicting workmen today, it probably is the most startling in the whole treatise.

The specific business of his "paper," for such is the modest classification he himself gives it, is:

1. To point out inefficiency.
2. To show that the remedy lies in systematic management.
3. To prove systematic management a true science, and that, when correctly applied, proper results must follow.

△ △

Mr. Taylor says underworking is almost universal. He further states that it is of two kinds—unintentional underworking, the natural product of habit and custom, and intentional underworking, by far the greater evil of the two, since it is nothing less than premeditated and well-thought-out cheating. On serious thought one is inclined to agree with the author that this is a force seriously to be reckoned with, but scarcely to the extent that it is the greatest evil with which working people are now afflicted.

Right here a question arises: Do the majority of underworkers premeditate this killing of time?

We do not think so.

It seems, rather, that another distinction should be made in the kinds of underworking. It is impossible to twist unintentional underworking into a semblance of unintentional underworking, but after careful consideration we believe a great part of it may be termed *conventional un-*

derworking. By this it is meant that employees underwork because they see that everybody else does, and, although they realize the error in the principle involved, they do not ponder over it to any great extent. They simply fall into line and do their share of loafing.

The logical conclusion seems to be that the cure for this condition rests in close, intimate, personal coöperation between managers and those managed. And this, in fact, is the essence of the doctrine of scientific management.

△ △

Mr. Taylor gives several striking illustrations in which he has successfully adapted scientific management to a number of kinds of work. The first is the now famous pig-iron illustration. This is too familiar to follow out in detail. Suffice it to say that it was found possible for the average uneducated laborer to load 47 tons of pig iron daily instead of 12 1-2 tons, his former capacity. His next illustration is the scarcely less famous shoveling demonstration. This was possibly even a greater evidence of the correctness of his theories than the pig-iron experiment. One especially interesting phase of the study is Mr. Taylor's statement that a telephone and messenger system was installed as an aid in working out his plans for the observation of a man's shoveling capacity.

Another experiment was that conducted in a bicycle ball inspecting room where girls were employed as inspectors. This instance is of peculiar interest to telephone men because of the similarity of conditions there and in an operating room. It is gratifying to note, also, that many of the ideas evolved in that test already have been put to use throughout this Company's territory.

The author's outline of a practical plan by which his ideas may be applied runs something like this:

1. Find 10 or 15 people who are especially skilled in doing the work to be analyzed.
2. Study the series of elementary motions or operations and implements used.
3. Study with stop watches the time for each elementary motion. Select the quickest way of performing each element.
4. Eliminate faults, slow and useless movements.
5. Collect in one series the quickest and best movements and implements.
6. Substitute this series for all others. Teach it through functional foremen to everyone concerned.

△ △

Among the objections to this sort of procedure is the plaint that it has the tendency to make automatons of workers. Mr. Taylor's answer to this argument is

brief and characteristic. He says that specialization always has tended towards this, and always will.

△ △

In his closing words on the subject, the author compares scientific management workers to students. The likeness is indeed marked. The main distinction is that students go to their teachers for instruction, and, in case of the introduction of "task management," the teachers find it necessary to go to the workers, and to "go to them" quite strenuously.

Mr. Taylor is especially emphatic on the point of time, declaring that no attempt should be made to introduce his principles under less than a period ranging from two to five years. He recommends that in the very beginning one person should be dealt with at a time. The first man chosen should be thoroughly convinced that he will be benefited by the proposed innovation. After he has become super-saturated, as it were, with the idea, other men should be changed over, one by one, to the new thought. When one-third or one-fourth of the entire body of employees have learned the new principles, it is said that an entire change of opinion will take place throughout the establishment. Results will follow rapidly. "Soldiering"—from which there can come nothing but harm—will cease because the employee will see the benefit of doing away with it. The productivity of the average man or woman will be at least doubled. Finally, it is claimed that the low cost of production which will be brought about will give men work even in the duller times.

△ △

By putting into printed form a work like "Scientific Management," Mr. Taylor does at least three things that are decidedly worth while. He recalls some very easily forgotten economical truths, develops to the nth power, so to speak, some more truths that are more or less obvious; and, perhaps more significant than anything else, he sounds a warning against the promiscuous application of his own deductions. As the operating magazine of a western Bell Company says: "In the telephone business we are not laying bricks. And we must remember that 'one swallow does not make a summer.' But even though the telephone business is not as old as bricklaying, there may be some unnecessary motions, there may be some unnecessary performances gone through with, which are now being overlooked just as thirteen of the original eighteen motions which were gone through with for a period of two thousand years in bricklaying were unnecessary and therefore wasteful."

Multiplex Telephony and Telegraphy

An Address by Major George Owen Squier, U. S. Signal Corps, to The Telephone Society of Washington

EDITOR'S NOTE:—Major Squier's interesting address was delivered March 2, 1911. Assignment to active duty along the Mexican border has prevented his editing the stenographic notes until a short time ago. Publication has been held, therefore, until the author was able to prepare his manuscript expressly for THE TELEPHONE NEWS.

MR. CHAIRMAN, AND GENTLEMEN OF THE TELEPHONE SOCIETY OF WASHINGTON:—I am particularly pleased to be able to come before men who are deeply in-

terested in telephone practice, and to give them a popular account of some recent experimental work that the Signal Corps has been carrying on, which I will endeavor to present in a more or less concise form. There is a considerable amount of technical data which has been prepared, and which will appear in due time, probably from the War Department, and possibly in some of the technical journals. It will be out of the question to do more than to refer to it briefly here this evening, as this data would require more time to present than is now at my disposal.

The subject which I wish to bring to your attention is that of high frequency multiplex telephony and telegraphy.

The experiments which have been conducted accomplish this by means of electric waves, guided by wire circuits such as are now used in ordinary telephone practice. The term "electric waves" is used advisedly, because when alternating currents become of sufficiently high frequency to be radiated from conductors, we are in the habit of speaking of them as electric waves; that is, energy breaks away from the conductors and passes through space, as was first demonstrated by Hertz, and free energy thus broken away in the ether in the form of waves, is what is employed in wireless telegraphy.

At the outset, perhaps we had better review for a moment the property of electric waves in a popular sort of way. The electric waves that are employed in wireless telephony and telegraphy are really no different from the waves of light that emanate from this lamp (indicating), except in their length and in the number per second. The speed at which they travel through free space is identical and is known as V , in technics, and is the velocity of light, which is about 186,000 miles per second. This constant is of great use to us, and it is of great importance to know its value. So, the waves that are employed in wireless telegraphy and telephony, such as you are familiar with, are identical with the ordinary waves of light, except that they are enormously longer and correspondingly fewer per second. So, if our eyes were properly constructed to see these waves we would really see the messages passing through the air, just as we know that certain animals have eyes that see what a human being cannot

see, and have ears that hear things that human beings cannot hear. We can regard with advantage any electric current that flows back and forth as an electric wave. For instance, in an ocean telegraph cable we know that the wave is very slowly alternating, and will correspond to something like seven, eight, or possibly ten cycles per second, whereas an ordinary lighting or commercial plant uses about sixty cycles per second—the standard frequency in most common use at the present time. Therefore, the lowest frequencies of waves that we know of, used commercially, are those found in ocean cables, or in a dynamo constructed to operate an ocean telegraph cable, which frequencies vary somewhere from five to ten cycles per second, depending upon the cable. As we go on from the lowest

yond them we find the visible light waves, the slowest of which are the red, and the most rapid of which are the violet; and beyond the violet are the "ultra-violet" waves, of such enormously high frequency and short wave length that they are not visible to the human eye as light, though scientists can prove their existence and investigate their qualities by other means.

But each of these waves, from the long, slow impulse used in telegraphing through a submarine cable to the shortest ultra-violet wave, is the same physical phenomenon; that is, it is an alternating current with the same general characteristics as the 60 cycle current that operates the street arc-lamp and the induction motor. It has definite properties and obeys certain laws, and these laws are in general the same, but at

different parts of this enormous range of frequencies we find certain characteristics apparently standing out and predominating.

Now in this whole chain, the range of frequencies from about 20,000—which is about the extreme upper limit which the human ear can hear—up to about 75,000 to 100,000, which is about the lowest limit of wireless, is a gap that only recently we have been able to fill by the construction of dynamos, due to the work of several gentlemen, including particularly E. F. W. Alexanderson. In the last few years they have developed a very satisfactory form of dynamo which gives a frequency as high as 100,000 cycles per second. It has been a great mechanical problem to construct it. This generator is of the form known as the "inductor" type. The rotor is simply a nickel-steel disc a foot in diameter, and in order to produce 100,000 cycles per second it must make about 20,000 revolutions per minute, which as you may imagine is a very high speed. This gives a peripheral velocity of something like 700 miles per hour; that is, it would roll from Washington to San Francisco in four or five hours, if we rolled it as a wheel. We are running one of these machines every day in our laboratory, and its operation has reached such a regular state that we no longer pay any particular attention to it; if we want 100,000 cycles we can get them, and if we want 25,000 we can get them. In fact, we can get any number of cycles from 20,000 to 100,000 with great ease and regularity. This generator has made possible the experiments to which I want to direct your attention. The output of the ma-



Major George Owen Squier, U. S. A., of Multiplex Telephony Fame

chine is about 2 k.w., comparatively a large machine. It was made for wireless telegraphy, where higher powers are needed for long distances, but we have been recently using it in applying it to telegraphy and telephony by means of wires instead of to true wireless. This generator then is the main thing that we use as a source of high frequency current. There are other methods of obtaining the high frequency sustained oscillations that are well known, such as the various forms of arcs, which are operated in connection with an ordinary direct current dynamo circuit. We have some of these in the

periods higher up the scale we come to those like 25, 60 and 125 cycles, which are produced by ordinary commercial dynamos, and as we go on still higher up the scale we come to those now used in wireless telegraphy, such as 100,000 cycles per second. I believe those now used for long distances, across the ocean, for instance, are about 75,000 per second but it has been common in wireless telegraphy to use as high as several millions per second. The shortest possible waves that have been thus far produced by electrical apparatus have a frequency of about 5×10 cycles per second; beyond this, that is, higher up in the scale, are the "infra-red" waves, and be-

(Continued on page 4)

Multiplex Telephony and Telegraphy

(Continued from page 3)

laboratory, and have tested them, but nothing can compare with the generator because we have no trouble with a spluttering arc. Furthermore, the arc always has something in it which is audible. In every experiment we tried on the arc we found on the ordinary battery telephone we heard something—some noise that was going on because the arc is an inconstant piece of apparatus in which chemical and other processes are going on all the time, giving something audible continuously.

So you see that we depend upon this rather unique generator, which has reached the commercial stage and which, when once installed in charge of a good engineer, needs no more watching than any other type.

Now, why do we select these frequencies between 20,000 and 100,000 cycles per second? Let us consider for a moment the human ear, because that is the Supreme Court after all—the final judge. We have got to build to fit the human being; so we had better begin to study the ear first. In doing so we find that the ear has this remarkable quality, namely, that air waves coming from a telephone receiver, or from any source whatever, are inaudible if their frequency exceeds about 15,000 to 20,000 cycles per second; while below that limit the ear detects them as sound down to a minimum of about 16 cycles. To repeat, human audition is possible only between approximately 16 cycles and 20,000 cycles; if air vibrations are slower than about 16 cycles, or more rapid than about 20,000 cycles, the human ear does not perceive them as sound.

So the ear has two critical points, the lower one about 16 and the upper one from 15,000 to 20,000 cycles per second, depending upon the particular human being. We then sought to utilize this unchangeable characteristic of the human ear; that is, that the higher frequency waves are inaudible. So I call your attention to the fact that we never use, in superposing any conversation upon the ordinary battery telephone, any electric currents at less than 15,000 to 20,000 cycles per second. We can use any frequency, of course, above that because nothing can be heard above that by the ear itself, and any harmonic that the generator may give—and higher harmonics are usually present in the waves given by alternators—would be still further away from audibility. So, if the fundamental of the generator is above audition we need not worry about the harmonics.

Now, why do we use this particular range of frequencies between 20,000 and 100,000? Those of you who are familiar with the wireless practice will readily understand. You know that as the period of the current is increased, more and more of the energy is radiated away from the wire. For instance, if the current is direct, or if it is an ordinary alternating current, of 60 or 125 cycles, it is practically all in the wire. This is what we call simple metallic conduction. As the frequency increases we do not notice any change until it reaches several thousand per second. In fact, in ordinary telephonic conversation, where it is rarely above two thousand—probably the average is something like seven or eight hundred—it is practically metallic conduction; that is, the currents actually flow in the metal of the wire. For this reason the resistance of the wire is one of the principal things that limit long distance telephony to-day. But if we still further increase the frequency, particularly when we get above 20,000, what we call the "skin effect" becomes more and more pronounced—

that is, the current is traveling more and more upon only the surface or "skin" of the wire—and more and more of the energy is radiated into the ether. So, if we went up into the millions per second, it would leave the wire almost entirely and radiate at once into the ether.

If we select frequencies below those at present used for long distance wireless transmission and above human audition, we will have currents that still alternate slowly enough to be conveyed, or at least guided by the wire, and at the same time are rapid enough to confine the phenomena to a comparatively narrow strip of the ether between the two wires of the circuit. This particular range of frequencies of alternating currents, namely, from 20,000 to 100,000 cycles per second, has been chosen for experiment for the reasons which I have given you.

So much for the general idea of the waves. They are regular alternating current waves, although we can neither hear nor see them. But we can make an ear that can hear them through what is known as the detector as used to-day in wireless telegraphy. We might call this an electric ear and we will discuss it further a little later.

Having, then, a suitable generator and believing it possible that with frequencies under discussion the currents produced would follow a wire and at the same time possess the properties of wireless waves, it seemed desirable to conduct a series of experiments to determine to what extent practical telephony and telegraphy by means of high frequency currents is possible over ordinary commercial circuits, such as are used in the telephone practice of to-day. Another reason why it was deemed desirable to do so will appear from the following. In the ordinary wireless practice as it exists to-day we have, as you all know, an antenna so arranged that an alternating current is caused to flow up and down it, causing electro-magnetic and electro-static waves to pass out into the surrounding ether and to spread out in all directions over the surface of the earth. They radiate out from the antenna through the ether with the velocity of light, namely, 186,000 miles per second. In order to send a wireless message from New York to England the only known method at present, by wireless, is to make such a disturbance in the ether at New York that these hemispherical waves, as they pass out in all directions with the velocity of light will reach the point desired and will there create another disturbance in the ether antenna, which in this case is located in England. Now, to any one who is familiar with the ordinary power transmission by wires nothing could be less efficient than such a plan, because in order to produce an effect in England we have got to disturb the ether in every direction, north, south, east and west, and the only parts of the radiated energy that we can possibly use are the small slices of wave fronts that are cut or intercepted by the width of the receiving antenna. The energy that we get in England depends upon the width of the antenna or aerial in England as compared with the entire circumference of the circle of which New York is the center and England a point on the circumference. You can imagine what a small amount we can possibly get at this station as compared with what we send out, and it is the marvel of marvels to me, and always has been, that with such an arrangement it is possible ever to get anything several thousand miles away by the ordinary wireless methods, because the "plant efficiency" is so absurdly small and because we waste so much more than there is any possibility of utilizing. It is for this reason that it has been found necessary to build large power plants for long distance wireless work.

We have to have many horse-power, large generators, large transformers, large condensers, capable of handling a great amount of energy at high voltage, because we have to use a great amount of power at the sending station in order to get a very small amount at a distant receiving station. But wireless has enabled us to develop a number of electrical receiving devices which are marvelously sensitive, although we usually stick to our old friend, the telephone receiver, as a final translating device. Accustomed to think of the ordinary forms of wire transmission of power, it is hard for us to realize how it is possible to get enough power by wireless to have it operate receiving devices as it does. If we could guide this energy in any way from the transmitting point to the receiving point, manifestly we would be on the road to increasing the efficiency, and it was this thought that made us see the desirability of conductive wireless—that is what it really is, which instead of allowing these waves to radiate in all directions over the earth drives them along the wire to where we would send them and there receives them in suitable apparatus installed for that purpose.

So, without devising or constructing any new apparatus, which we have not done, we simply took the wireless art, as it exists to-day, with all of its methods and forms of apparatus, and brought it over and applied it to a wire, leaving intact the existing wire practice as it is. No new and untried apparatus of any kind is required for the successful operation of this method of multiplex telephony and telegraphy.

In regard to the grouping of the two together, it is fortunate that in the wireless art telegraphy and telephony have gone hand in hand through the whole system of development. Of course, telephony has come in later, but the same "set up" of apparatus with the exception of the transmitter, is adaptable for both telephony and telegraphy, which is not the case with wire practice. We now see different companies with different pole lines, conducting wire telephony and wire telegraphy with radically different apparatus. On the other hand, the wireless systems have the same for both, the same tuning devices, the same detectors, and all, the only thing different being the transmitter. Wireless telephony uses a telephone transmitter, wireless telegraphy uses an interrupter and a telegraph key, and as there is only this slight difference in the apparatus we can readily bring them both together, telephony and telegraphy on the same wire circuit. In every station which is equipped for one we have nearly all the essentials for both. Wherever we have a telephone circuit in wireless, we can have a telegraph circuit there, too, if we wish, with the single addition of a key and a suitable interrupter which may be run from a small motor.

The first experiment which I will now describe was evidently the crucial one. Any one who proposes and attempts to introduce any system or apparatus which does away with or injures the existing high standard of telephony in this country will travel a hard road. It was a point to be decided in the beginning whether or not we could bring to the ordinary long distance telephone plant, with its great delicacy, and superimpose on its lines and apparatus electric waves of frequencies which are above 15,000 or 20,000 and not affect the existing battery telephone system. Accordingly, the first experiment conducted was the crucial one of taking an ordinary telephone line and equipment, as it exists to-day, and superimposing upon the line this alternating current, relatively quite a large current, to see if it did anything to the receiver, the transmitter, or to any other part of the system.

(To be continued September 15)

Baltimore Division

J. R. MOFFETT, Division Correspondent



Photograph of Lightning Flash
at Hagerstown, Md.

The Western Maryland territory of the Chesapeake & Potomac Company has had considerable trouble during the summer because of severe lightning and wind storms. Within a month's time it was visited by at least seven heavy storms. The Plant Department worked day and night until all trouble was cleared. On one occasion, immediately after all troubles were reported cleared and the employees were about to take a rest another storm "blew in." It was discouraging but the resulting trouble was cleared in good time, as on the previous occasion.

Below is part of the trouble report for one month:

Office	Lines Out.	Stations Out.	Trunks Out.	Cable Troubles.	Trees Down.	Poles Broken.	Arms Broken
Hagerstown	415	2451	74	81	23	15	13
Cumberland	121	272	19	210	2	0	2
Frederick	303	916	66	303	20	9	12
Westminster	74	533	26	10	8	1	2
Martinsburg	116	574	10	2	3	0	0

"Meet me in New York to-morrow morning without fail." This telegram, addressed in care of the Company to a person unknown as an employee, was received at the Baltimore office. When the directory was consulted the addressee's name was found listed as a subscriber on one of the suburban exchanges. He was promptly called and the message read to him.

An exchange prints this little joke:

The telephone girl was on her vacation, and fishing. Someone in another boat called "Hello!" Just then she got a bite. "Line's busy!" she answered.

During the storm of August 2 the lightning struck eight poles on the line belonging to the Lynch Telephone Company, near Chestertown, Md. (Plan "A" Rural) completely demolishing them and scattering the pieces 30 feet across the road. The agent for the Lynch Telephone Company immediately called a meeting and arranged to get out their poles at once, and the service was restored in a few days.

NICHOLS.

Annapolis District. The morning following a recent electrical storm, which put 400 stations out of commission at Annapolis, the local manager made a trip with the trouble man to locate a case of trouble at a subscriber's house. While there the subscriber's wife, who is a New York City resident, complimented the Company upon the quick, efficient service and promptness in looking after its troubles.

CLEMSON.

Salisbury District. On July 22 a private branch exchange contract was closed with the New York, Philadelphia & Norfolk Railroad Company at Cape Charles, Va. It provides for two trunks and 79 stations. This makes the fifth private branch exchange in the Salisbury District, and all obtained since January 1, 1910.

Connected with the Salisbury Exchange are 22 Plan "A" rural companies with 227 stations, and eight Plan "C" companies with 63 stations. There is not a single road leading from Salisbury that does not have one or more rural lines.

The foundation for the Salisbury new exchange building on Church Street is completed. N. M. MacLeod, of the Engineering Department, has charge of the work.

The Belle Haven, Va., Exchange office is being moved from a small dilapidated building to more commodious quarters in the J. L. Kellum Building, on Main Street.

The Plant Department has commenced the work of stringing about 8,000 feet of additional aerial cable in Salisbury. A number of orders are being held pending the completion of this work. A new position has just been installed to take care of additional business.

A Salisbury liveryman recently hired out a team to a traveling man. The team was returned in the evening and before they were got into the stable both horses dropped dead. The liveryman used the telephone next morning to trace the territory covered and found the team had been driven 77 miles.

The following letter has been received at the Westminster, Md., office from the Secretary of the local Merchants' and Manufacturers' Association:

It is with pleasure that I write you in reference to your new building recently erected in this city. It is centrally located, in close touch with the large business houses, a credit to the Company and an ornament to the city.

The new service is a much needed improvement and we feel will measure up to the requirements of our growing town. The Chesapeake & Potomac Telephone Company commends itself to our people by its prompt and efficient service, the courtesy of its employees and an up-to-date equipment.

Unsatisfying

"There is nothing more unsatisfactory than a boarding house beefsteak," growled the chronic grumbler.

"Oh, I don't know," rejoined the impressionable young man. "Did you ever get a kiss from a pretty girl over the telephone?"—*Tid-Bits*.

**Organization and Territorial Changes**

On and after September 1, 1911, the plant of the former Pennsylvania & New York Telephone & Telegraph Company in the Counties of Erie, Warren and McKean, previously under lease to The Central District & Printing Telegraph Company, will be operated by The Bell Telephone Company of Pennsylvania. All operations in this territory, however, will be supervised by the division headquarters at Pittsburgh as in the past.

Warren and McKean Counties, Penna., now a part of the Butler District, and Erie County, Penna., now a part of the New Castle District, will be embraced in a new commercial district to be known as the Erie District with headquarters at Erie, Penna. E. F. Patterson is appointed District Manager of the Erie District and shall report to the Pittsburgh Division Manager. The Local Managers at Erie, Warren and Bradford shall report to the Erie District Manager.

Fred Pfannkuch and C. H. Smith, linemen, Plant Department, Pittsburgh, have been appointed Foreman and Repairman, respectively.

The following additional A. T. and T. Company Traffic changes are announced:

The District Traffic Chiefs in charge of Districts 21, 22, 23, 25 and 26 report to Division Superintendent C. H. Hadlock at New York. The District Traffic Chief in charge of District 24 reports to Division Superintendent G. A. Watson at Atlanta.

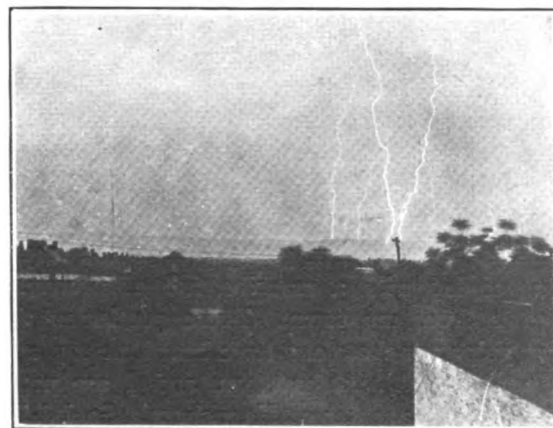
The following appointments are effective from September 1:

J. S. Rice, Division Superintendent of Traffic, Division 4, is appointed Special Agent in the office of the General Superintendent of Traffic, headquarters at New York, N. Y.

Hermann Thomas, Division Superintendent of Traffic, Division 2, is appointed Division Superintendent of Traffic, Division 4, headquarters at Chicago, Ill.

The Modern Man

In the business and professional world we may note to what extent attention has been given, in the past few years, to equipment. The man whose father wrote his own letters and worked out by hand his own problems now requires an entirely different outfit to accomplish the same duties. The modern man, in addition to having the best mechanical devices, must be better educated and better fitted in every way to compete with his fellow-men. His equipment, both mental and physical, must be of the best, and unfortunate is that beginner who fails to appreciate the fact.—*Anon.*



Two Additional Reproductions of a Series of Remarkably Successful Lightning Photographs, Hagerstown, Md.

Upper: Officers of Pennsylvania's Fa
Lower: Telephone Installation at Brig



The "Goat Trail Fight"

Telephones at Camp Wiley

(Continued from Page 1)

arrived the farmer had failed to show up. Saddle horses were scarce in this region at just that time and the trooper was becoming very much excited when his eye caught sight of a Blue Bell sign. He called the farmer. It happened that the latter had misunderstood the name of the troop and turned over the animal to a member of the "Sheridan Sabres," with the understanding that the horse was to be given up if the original renter was disappointed. After a little argument the farmer offered to get as good an animal from a neighbor and let the Tyron man have it. The disappointed trooper had a new mount by noon. Total cost of the transaction—\$15 for the horse, 15 cents for the telephone message.

The public stations were used by everyone. Governor Tener was not an exception. One of the men who took part in the camp tells this incident of Governor's Day: A call was received quite early in the morning at the General's tent. The Governor happened to be there and stepped to the telephone without asking any questions of the orderly who received the call.

"Hello, John. I'm the Honorable Mr. Blank."

"All right; go ahead."

"Listen, now. I'm going over to the inspection to-day with a machine full of prominent people from my town. These gentlemen that I'm going to take along have heard me say a lot about you. They think you and I are pretty close to one another at Harrisburg. So I'd like you to act as if you had known me for years.

I'm going to bring them over to call on you. Will you do it?"

"Guess I'll have to," smiled the Governor. "But how shall I know you?"

"That's easy," concluded the "Prominent Citizen;" "I'll have a green and white handkerchief around my neck."

During the mimic battles telephone equipment came in as handily as it did in the recent Texan maneuvers. Two or three times a day detachments would leave Camp Wiley to do military "stunts." One time the "stunt" would consist in throwing up trenches, and when the ditches were finished the men would lie down in them and do theoretical sharp-shooting.

Another day there was a big battle. At dawn one regiment slipped out of camp. Three or four hours later another hurried away. Each was provided with a detail from the Signal Corps to look after the maintenance of communication by telephone and telegraph. When the regiments departed, these details left Western Electric telephone sets and Western Union telegraph instruments in the tent of the Brigadier General. The electrical apparatus was attached to a very small wire of great length. As the regiments proceeded into the country, the wire was unwound from reels carried on carriages that looked something like the familiar village hose jumpers. Mounted men carried long sticks with crotches on one end. The sticks, which were manipulated with great dexterity, were used to throw the wire over hedges, fences and into the underbrush so that the copper trail would be as well hidden as possible. When the regi-

ments took a position, telephones and telegraph instruments were attached to the regimental ends of the wires and communication was held immediately with the General's tent at Camp Wiley.

On this particular morning the regiments marched for ten miles through the country and finally reached a point where their paths crossed. An observing officer of one regiment noticed a goat trail leading up a hill side. A council was held and the regiment was marched up this hill. It had just reached the summit when the other regiment was seen in the valley not a mile away, a position that would have been disastrous in war time. A thousand or so of blank cartridges were fired and the men on the hilltop "won." The battle is now down in National Guard history as "The Goat Trail Fight."

One of the features of each day's program was a band concert. Each of the four regiments making up the brigade maintains a band, and naturally enough each thinks its musical organization the best in camp. The daily concerts were held in order to see which band could best back up its reputation. In other years the choice has been very hard to make. In fact, the superiority resolved itself into a question of



amous "Fighting Tenth" at Camp Wiley
Gen. Hueling's Headquarters



Ready for the Word

which band could prepare itself in the shortest time to render a program any time and anywhere. This year the General refused to arrange a schedule for the bands. Instead, he went to the telephone each evening, called up a Colonel and told him that his band was booked to play in 5, 10 or 15 minutes. Sometimes the same band would appear on successive evenings. All were given a chance during the ten days, and toward the last the musicians would not have been surprised if a concert had been ordered for sunrise. It is said that a certain bandmaster held a drill at 3 o'clock one morning just to see how quickly his men, horns, drums, etc., could get together preparatory to giving a concert.

Newspapers throughout Western Pennsylvania used columns on columns about the camp doings. The special writers worked overtime. Camp stories were sent directly to the newspaper offices over Western Union wires. The telegraph company had a special tent on the field and operators were in attendance day and night. In spite of the fact that stories were filed every few minutes, the news was handled in excellent shape.

How well this Company covered its field is shown by a glance at the record of long distance

messages sent from the camp. On Sunday between sixty and seventy long distance messages originated at one of the public stations on the camp grounds. Nine out of ten of these messages concerned soldiers who had Bell telephones in their homes. The men in making the calls usually requested that the charges be rendered in connection with the regular monthly bills for telephone service.

All of the men attending the camp were paid by the State, but the pay came about ten days after the encampment ended. Personal expenses at a place like this are much below those of ordinary life, but the frailty of the pocketbook was as noticeable at Camp Wiley as it is anywhere else.

"That's just like finding money," remarked a lieutenant as he hung up the receiver on the morning of the second day. "You see, I changed hurriedly to this uniform and forgot my check book, wallet and a letter that I wished to mail immediately. I never thought a thing about it until I saw the pay station sign over there. Then I patted my hip pocket and all my other pockets—but found I was 'broke.' So I just called up the house, sixty miles away. In a few minutes my letter will be mailed and I see no reason why that wallet shouldn't land here in the afternoon mail. I can't remember another time when I have been absolutely without a cent. But it didn't make much difference this morning. I had the message charged to my telephone at home."

The Telephone of 664

From Works of Robert Hooks,
published in 1664.

And as glasses have highly promoted our seeing, so it is not improbable but that there may be found many mechanical inventors to improve our other senses, of hearing, smelling, tasting, touching. 'Tis not impossible to hear a whisper a furlong's distance, it having been already done; and perhaps the nature of the thing would not make it more impossible, though that furlong should be ten times multiplied.

And though some authors have affirmed it impossible to hear through the thinnest plate of Muscovy glass, yet I know a way by which it is easy enough to hear one speak through a wall a yard thick.

It has not yet been thoroughly examined how far Octocousticons may be improved, nor what other ways there may be of quickening our hearing, or conveying sound through other bodies than the air; for that is not the only medium I can assure the reader that I have, by the help of a distended wire, propagated the sound to a very considerable distance in an instant, or with as seemingly quick a motion as that of light, at least incomparably swifter than that, which at the same time was propagated through the air; and this not only in a straight line, or direct, but in one bended in many angles.

Views of a British Expert

An Interesting Report on Telephonic Conditions in this Country

The London *Daily Mail*, of London, England, recently printed an interesting digest of telephonic conditions in the United States, as viewed by British experts. The article is quoted in part:

"The full report made by four chief officials of the General Post Office upon their recent visit to the United States, where they went to study American telephone development—in view of the approaching transfer of the National Telephone Company to the Government—has been printed for circulation among the heads of departments and contains many interesting points. The officials who have compiled the report are Mr. A. W. Martin and Mr. T. F. Purves, two of the principal engineers of the Post Office, and Mr. J. S. Jones and Mr. J. Lee, traffic managers of the British telegraph and telephone services.

"Mr. Purves yesterday spoke of matters they had seen and embodied in the report. 'America was the cradle of the telephone,' he said, 'and its telephone engineers have led the world, so we should have no diffidence in copying anything in their practice which will suit the conditions of this country. But I would not give all the credit for the wonderful development which has scattered eight millions of telephones up and down the United States to their engineers and commercial managers. The American public has taken to the telephone as a duck takes to water, and its insistent demand has been a continuous spur to those in whose hands the provisions of the service have rested. And telephone progress has been greatly helped by the absence of many of the facilities for cheap and rapid postal and telegraph communication to which we on this side are so accustomed.

"The erection of tremendously high buildings in American cities has also helped the telephone, for when a man's office is perched on the thirteenth or fourteenth story he wants to do as much business as possible without going outside, and the telephone is essential.

Free Services.

"The number of free services given by many American telephone companies is very noticeable. For example, it is quite an ordinary thing for persons to give the telephone exchange notice that they require to be awakened at a particular hour next morning, or even to make an arrangement for every morning, and for the telephone company to do this. No fewer than 80,000 subscribers in Chicago call up in a day to inquire the correct time. Election results and the results of sporting events are also circulated freely to all who want them."

"Comparing the American with the British system Mr. Purves made these points:

"The telephone service is distinctly smarter in the large towns of America than it is with us. Since I came back the local London service has seemed more irritatingly slow than it did before. We have plant and equipment practically identical with those of New York and Chicago, yet the result in speed of service is not as good.

"As regards long-distance services, general statistics show that the average delay before a trunk connection can be obtained in England is not very much greater than it is in America. Their superiority is principally in communication between large cities, and in this respect it is indisputable. The explanation is simply that the trunk lines between principal cities are provided upon a much more lavish scale than has been the case in this country. Consequently the Ameri-

The Right Idea

The Commercial office at McKeesport, Pa., has been removed from Ringgold Street to 418 Walnut Street. The new office has unusually desirable show windows and the first telephone display in them attracted somewhat of attention. A standard desk set which formed the center of the arrangement was connected with a map of the United States that served as a background. The connections were made by numerous blue ribbons, each of which led from the telephone to a point that could be reached by Bell telephone.



McKeesport's Attractive Office Window Display

can rates are two or three times as high as those of the British Post Office for conversation over the same mileage. The trunk service is relatively much less used in America than it is here. The small man over there cannot, because of the price, afford the luxury of much long-distance telephoning."

Commenting editorially on the preceding matter the following appears in the same issue:

"The telephone system of the United States has long been famous for its efficiency, and the first-hand account which is given of its progress in another column by Mr. Purves, one of the Post Office engineers who have recently visited America, at least shows the ideal at which Britain should aim. We have, however, to travel fast and far in telephone matters before we attain the rapidity and precision of service which are common in the United States.

"The lead that the United States has gained is ascribed by Mr. Purves to a number of causes among which are the comparative inefficiency of the American telegraph and the general use of 'sky-scraper' offices across the Atlantic. In these buildings it is a serious journey to get up to the top floors or down from them, and thus they have engendered a national habit of doing business by telephone. But there is one other cause contributing to the efficiency of the American service that Mr. Purves does not mention. In England, though the master-patents of the telephone were of British origin, the telephone was at the outset discouraged by the Post Office, which had the monopoly of electrical signaling, and the grant of way-leaves for telephone wires was ruthlessly opposed by the municipalities. The National Telephone Company was only granted a brief concession, at the end of which it knew that its plant would be taken over at 'scrap' value. Thus the development of the telephone was restricted and its first cost inordinately raised."

Successful Telephone Shopping

The Plan of an Allentown Store

To show how we often underestimate the possibilities of shopping by telephone and that the management of department stores in general underestimate the value of sufficient telephone equipment was demonstrated recently in Allentown when the Zollinger-Harned Company, one of the largest department stores in Allentown, had what it termed its "Telephone Opening." This store had been considered sufficiently telephoned, but upon analysis of its telephone business by one of our salesmen, it was found that additional equipment was needed. The old equipment consisted of a cordless switchboard, 2 trunk lines and 7 stations, and, in telephone selling, a poorly trained corps of sales people. The question was taken up several times without results and the proper plan could not be appreciated until the salesman arranged for a conference with the Board of Directors of this store, who immediately gave him orders to install a modern telephone system, and requested him to organize the sales force and instruct them as to the proper method of handling customers who desire to shop by telephone.

A contract for a No. 4 board with 3 trunk lines and 20 stations superseded the former equipment. Telephones were placed in each department and signs calling the public's attention were placed at each station as follows: "Free Bell Telephone—Use It." An experienced operator was engaged from the Company's exchange force to operate the switchboard and act as a general information bureau.

The salesman had a talk with each of the clerks in the store who handled telephone calls explaining what the management wanted to accomplish, viz.,—To make it as easy to purchase goods by telephone as if the customer were at the counter, and that to do this it was necessary for the sales person to be courteous and to make the customer feel that special attention was being given, also to make suggestions regarding other articles in the several departments which might appeal to the customer. Another feature is the abandonment of the word "Hello." On incoming calls the operator responds, "This is Zollinger-Harned Company," the customer desiring, for instance, the hosiery department, is immediately connected with that department and is greeted with, "This is the Hosiery Department. Miss ——— talking." Upon completion of the order the customer is thanked for his or her patronage and invited to call the store at any time either for information or to purchase. They are assured that they will receive the same attention as if at the counter.

The Zollinger-Harned Company inserted a full page advertisement in all local papers calling attention to the fact that it had installed a modern private branch telephone exchange, inviting the public to shop by telephone and using the Company's Bell and desk stand cuts freely and also announcing that each day in the space headed "Telephone Suggestions" it would call attention to a special sale of some article easily purchased by telephone. For one day's telephone special was suggested "Onyx \$1 silk hose at 89c," and as a special for the Grocery Department "Navel Oranges, 30c kind, 25c per dozen."

The store was closed one-half hour earlier than usual one evening in order that a short address might be given the employees by our salesman on shopping by telephone. This salesman also arranged for a short lecture by J. A. McCollom, Jr., on the "Science of Salesmanship and Business Building."

Death of W. D. Sargent

Veteran Operator, Financier and Associate of Alexander Graham Bell

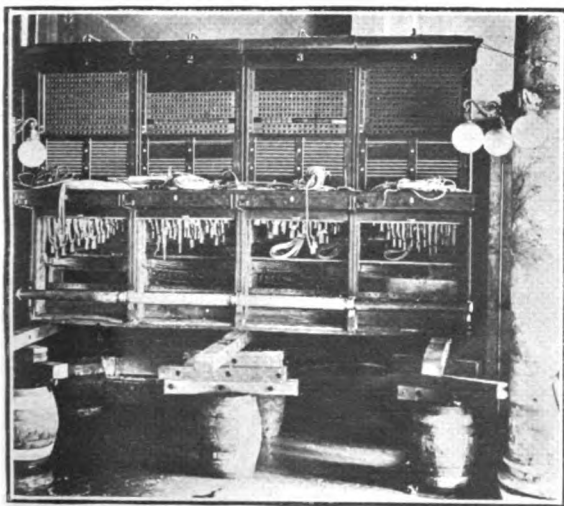
William Dunlap Sargent, one of the best known electrical experts in the United States, died August 10 at his summer home in Somerset, Pa. Mr. Sargent was born at Ligonier, Pa., in 1844, of a family that for more than a century had been prominent in Westmoreland County. At the outbreak of the Civil War, Mr. Sargent entered the Signal Corps of the Federal army and served as a telegraph operator at many strategic points in the South. After the war he held positions with the Western Union Telegraph Company at Harrisburg and Philadelphia and in the larger city is credited with organizing the first telegraph messenger service.

When Alexander Graham Bell was experimenting with his telephone, Mr. Sargent became interested in the work and was in frequent consultation with Dr. Bell. Mr. Sargent was first vice-president of The New York and New Jersey Telephone Company before its consolidation with the New York Telephone Company. After the consolidation, Mr. Sargent entered the directorate of The New York Telephone Company and was a member of it at the time of his death.

Flood Conditions in Pittsburgh

Some time ago when the waters of the Allegheny and Monongahela Rivers were on the rampage, the flood rose higher and higher until many people thought that Pittsburgh was to be inundated. The lower floors of hotels, theatres, restaurants and other buildings were covered with water, and both social and business life were greatly interfered with. Plant men had their hands full. Calls were received from all parts of the city urging the immediate rescue of switchboards.

In the Colonial Hotel, at the corner of Penn Avenue and Sixth Street, the water arose to a height of three feet but the private branch exchange was saved. Plant representatives obtained six beer kegs that were floating about in a neighboring cafe and boosted the switchboard on top of them. This was thought to be of sufficient height to keep the board dry. But day by day the water rose higher. As the water rose, cross-arms were placed between the kegs and the board. When the flood reached its height, four cross-arms had been placed on each keg and the bottom of the switchboard was flush with the flood.



Extraordinary Measures to Save Private Branch Exchange Switchboard in a Pittsburgh Hotel

Pittsburgh Division L. W. GRISWOLD, Division Correspondent

Pittsburgh District. That a certain salesman is very much interested in his work is quite evident from a dream which came to him one night.

He dreamed that he had opened a tailoring establishment. A customer came in and inquired the price of a pair of trousers. The salesman glibly told him that he would rent him a pair of four party line trousers for \$2 a month.

"But see here," said the customer, "am I not to have the exclusive use of these trousers?"

"Oh, no," was the response, "three others will have the right to use them."

"Well then, how often can I wear them?"

"You will have the privilege of using them for five minutes each day or thirty times a month."

"But," said the customer, "how will I know when my time is up?"

"Oh, that will be very easy," the salesman assured him. "When your time is up the other people on the line will soon let you know."

The customer finally bought a pair of unlimited service, single line trousers, and left in a satisfied frame of mind.

In Ben Avon, a Pittsburgh suburb, a certain land company has placed on the market what it calls a "Plan de Luxe." In addition to carefully graded and shaded streets, with such improvements as sewers, cement walks and so forth, the company has an unusual feature. This consists in land set apart for the use of the Bell telephone lines. There is not an alley in the whole plan, but at the rear of each lot a strip five feet by the width of the lot has been set apart for the building of a pole line. These lines are now about completed and service is being given to a number of bungalows that have been built in the "Plan de Luxe."

On the night of August 15 the entire Grant Street plant of the S. B. Charters' grocery concern in Pittsburgh was burned. The next morning each Pittsburgh newspaper contained an announcement occupying three columns by seven inches, asking patrons who had traded at the destroyed plant to telephone or mail their orders to the plant in Allegheny. An enterprising Bell salesman read the announcement on his way to work. He realized that the equipment in the Allegheny store would be overtaxed, so he made a call on the proprietor who had experienced the hard luck and offered to do anything that was possible in a telephone way to help out. Mr. Charters explained that he was opening a branch store at Third Avenue and Market Street. The salesman arranged for the transfer of calls from the burned telephones and signed the proprietor for two direct lines for incoming service and a special line to the office of the proprietor, to be used for all outgoing messages. It was an exceptionally good piece of business. In addition, the salesman made a lifelong friend by aiding the unfortunate merchant.

Uniontown District. In Morgantown, W. Va., there is a subscriber who has a Bell telephone in his flat on the third floor of an apartment house. His brother-in-law took a flat downstairs, and the family on the third floor, wishing to be cordial, arranged for an extension telephone to be placed on the first floor. This arrangement was made several years ago, and although several salesmen have tried to change it to a more suitable one, it remained for a new man to make the family on the first floor thoroughly dissatisfied with the old scheme:

The new salesman fixed it up with the traffic department so that a record was kept of the number of times conversations like the following occurred during the week:

"Hello, Information, I want Mr. First Floor on Water Street."

"He does not have a telephone," would be Information's reply on each occasion.

One day the salesman met Mr. First Floor on the street and showed him the record.

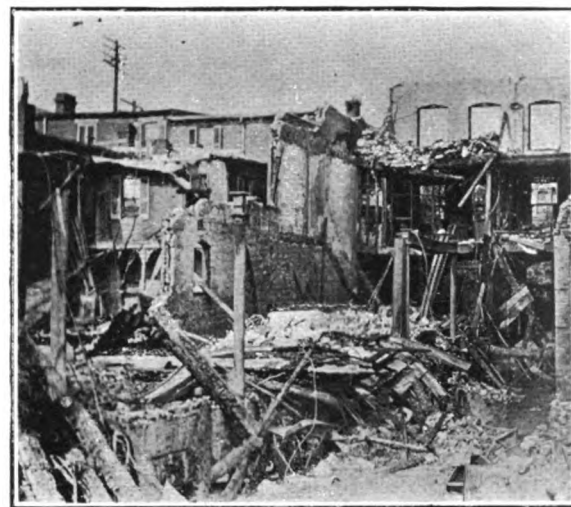
"Why don't you get a telephone in your apartment?"

"I have one," said Mr. First Floor.

"Well, you're the only one that knows it," replied the salesman.

Then the salesman explained that since the telephone was an extension, it was only known to the outside world as Mr. Third Floor's. Not only that, Mr. First Floor was told that within a week 12 persons had asked Information if there was a telephone in the first floor apartment. To all of these inquiries the reply had been "No."

Mr. First Floor became much interested and signed an application at once. CAHOON.



Emergency Work at Harrisburg

On the morning of July 15 a fire of mysterious origin totally destroyed Bernard Schmidt's large bakery, residence and several other buildings at Harrisburg, Pa. The bakery was one of the largest establishments of its kind in Central Pennsylvania, employing 30 bakers and having an output of about 35,000 loaves of bread every 24 hours. Its delivery vehicles, fifteen wagons and three automobiles, were destroyed.

The 50-foot pole in the rear of the bakery was burned to such an extent that a new pole had to be set. An installer, who is a member of the local fire department, helped fight the flames until daylight and then started pulling slack and clearing trouble. Mr. Schmidt had one direct line, one main and three extensions. A loop man who lives nearby recovered one instrument, but was unable to save the balance on account of the flames.

The Installation Foreman, realizing the importance of the Bell service in Mr. Schmidt's establishment, started to call his men at 3.30 A. M. and by daylight they were on the poles running wire to the temporary quarters, two squares away. At 7 o'clock a telephone was O. K'd. Through this service Mr. Schmidt secured the aid of several out-of-town bakers and, with the assistance of others in Harrisburg, handled about one hundred out-of-town shipments and all his city trade.

Mr. Schmidt thanked the Company heartily for the quick service established in his temporary quarters.

Opinion of the Public Service Commission of Maryland

In the Matter of the Application of The Chesapeake and Potomac Telephone Company for an Order Authorizing it to Purchase the Capital Stock of The Western Maryland Telephone Company of Allegheny County

The applicant, the Chesapeake and Potomac Telephone Company, is a New York corporation with an authorized capital of \$15,000,000, of which stock to the amount of \$13,000,000 has been issued and is outstanding, and by its charter it is authorized to own telephone lines in the State of Maryland and to purchase, acquire, hold and dispose of the property, franchises, stocks, bonds and other evidences of indebtedness of other telephone companies, domestic and foreign. Among its subsidiary companies is the Chesapeake and Potomac Telephone Company of Baltimore City, the Maryland corporation that owns and operates a telephone system in Baltimore City and certain counties of Maryland, including Allegheny County; and of the Two Hundred shares (\$10,000) of stock of the latter company, the applicant owns One Hundred and Ninety-five shares (\$9,750), the other five shares standing in the names of individuals for the purpose of organization. For some time there has been in operation in the City of Cumberland and throughout Allegheny County, an independent or competing telephone company known as the Western Maryland Telephone Company of Allegheny County, which is a Maryland corporation with an authorized capital stock of \$100,000, all issued and outstanding. Organized eight or ten years ago because of dissatisfaction with the service or charges of the Chesapeake and Potomac Telephone Company, the Western Maryland Telephone Company, which for convenience we will call the Cumberland Company, rapidly grew and prospered, at the expense of its rival, until to-day it has in the City of Cumberland some 2800 subscribers as against about 800 who still retain the older service; but lately, in the language of counsel, it has found itself "bottled up" in Cumberland by the fact that most of its connecting lines in the rest of the State, and particularly its connection with Baltimore City, have been absorbed by the "Bell" system. To such an extent, indeed, has this absorption proceeded that, in order to have the means of communicating with Baltimore and other parts of Maryland outside of Allegheny and the immediately adjoining counties, even the gentlemen most largely interested in the Western Maryland Company and active in its management have been obliged to have Bell telephones installed in their offices or residences. Moreover, while the Cumberland Company has been busily extending its lines and its service, and to provide for such extensions has issued two series of bonds, amounting together to \$165,000, secured by mortgage upon all of its property, its managers appear to have overlooked the fact that in the course of time its equipment would wear out and require renewal. The necessity for renewal is now becoming obvious, but the source from which the needful funds are to be obtained is not patent, in view of the existing encumbrances.

In this situation the Chesapeake and Potomac Telephone Company opened negotiations for the purchase of all the stock of the Cumberland Company, which is held by three voting trustees with broad powers, including the power to sell, and the negotiations resulted in the grant of the "option," or contract, which the commission is now asked to approve and ratify. By the terms of this option, the Chesapeake and Potomac Tele-

phone Company is to pay for the \$100,000 of Cumberland Company stock \$40,000 in cash and \$40,000 in common stock of the American Telephone and Telegraph Company and is to redeem at par or guarantee the \$165,000 of bonds outstanding.

One citizen of Cumberland has protested against the transaction on the grounds (1) that it is against public policy, (2) that it will destroy the competition between the two companies from which the people of Cumberland have heretofore greatly profited both in the matter of rates and in quality of service; and (3) that it is prohibited by the ordinance of the Mayor and City Council of Cumberland, which granted to the Cumberland Company the right to operate in that city upon the express condition, among others, that it should not directly or indirectly transfer the franchise to or consolidate with any other company.

Protest was also made by or on behalf of a number of so-called "independent" telephone companies, which have heretofore had connections with the Cumberland Company and regard it as an important link in the independent system. They insist that this is only one step in the plan of the "Bell" system to throttle or buy off all competition and establish a giant monopoly that will include the whole of the United States in its relentless grasp; that the establishment of such a monopoly is contrary to public policy, and the proposed price is excessive and, if the purchase is permitted, will be made the basis of increased and excessive charges for telephone service. They specially urge that neither the property nor the business of the Cumberland Company would warrant a price at all approaching that now offered for its stock, but the whole value over and above the incumbrances lies in the opportunity to cripple and destroy the "independent" system by withdrawing an important member and creating a gap in its lines of communication; and that it is unjust and wrong to permit the Cumberland Company to make capital of the fictitious value thus attached to its position, to the great and irreparable injury to the other companies that have been associated with it and have helped to build it up.

There is no suggestion that in the negotiation between the two companies there was anything like collusion. One company wanted to sell for the highest price and the other to buy at the lowest price possible. The evidence satisfies us that the number of subscribers and the good will of the community give a large "going value" to the business; and the representatives of the Chesapeake and Potomac Telephone Company were certainly competent to ascertain the extent of that value as well as to determine what the property will be worth to the purchaser. On the question of price. We will not undertake to review the judgment of the parties most interested and best qualified by knowledge and experience to reach a correct conclusion. While we feel great sympathy for the gentlemen who are threatened with disintegration of the "independent" system which they have constructed with so much labor, we have no means of helping them. The difficulty is that the so-called "system" seems to lack cohesiveness. As was remarked in the argument, if we disapprove this sale, there is no power to prevent another of the allied companies from selling out, with the same disintegrating effect, and experience has shown that, because of their extreme "independence," each is free to sell, and does actually sell, whenever the opportunity comes to make a sale that is deemed advantageous. The Cumberland Company says that it is the defection of former allies that has caused it to be "bottled up," and

it is now merely following the rule of *savez qui peut*, which is universally prevalent.

On the other hand, even if we do not accede to the view that the existence of this Commission is itself evidence that in the judgment of the people of Maryland regulated monopoly in public utilities is better than destructive and expensive competition, we see no answer to the demand of the people of Cumberland for telephonic communication with the rest of the world as well as among themselves. As the matter now stands, the Cumberland Company renders better local service, but has practically no "long distance" connection, while the Chesapeake and Potomac Telephone Company has the only "long distance" service and inferior local service. The great majority of the citizens of Cumberland who use telephones at all have the telephones of the local company, but must resort to the other company if they wish to speak to any outside of that immediate neighborhood, and the result is that many are compelled to install both telephones, which means, of course, double expense. This certainly calls for amendment of some kind.

The application for approval of the purchase clearly sets forth, as follows:

The facts warranting the proposed acquisition:

(1) The advantages to the respective companies.

(a) The avoidance of future useless duplication of plant.

(b) The reduction of necessary present expenses of building, operation, maintenance and reconstruction, and the prevention of the present operating losses.

(c) The obtention of business substantially sufficient to justify the operation of a single system at a high point of efficiency.

(2) The advantages to the Public—the users of the Telephone Service;

(a) The relief given to part of the telephone using public in Allegheny County from the expense of subscribing for two telephones and the inconvenience of two systems, the estimated net saving to the public on this account being Twenty Thousand (20,000) Dollars per annum.

(b) The opportunity offered that large portion of the telephone users who now subscribe to one or the other of the companies, and who consequently have only a partial service, for connection with all telephone subscribers in the County; in other words, a complete local service.

(c) The opportunity offered to the present subscribers of the Western Maryland Telephone Company for the advantage of the toll and long distance service of the Bell System; in other words a universal service.

(3) The advantage to the general public—The possibility to remove a large portion of the present duplicate plants, thus adding materially to appearances and to public convenience in the territory in question.

In our judgment this statement of the advantages to be derived from the acquisition of the stock of the Cumberland Company by the Chesapeake and Potomac Telephone Company is unanswerable, and while we may not wholly disregard other elements, the controlling consideration with us must always be the general advantage to the public.

It remains only to notice one other objection urged by those who protest against the proposed

(Continued on page 12)

The Electric Starting of Gas Engines

It is a general practice throughout the Company's territory to use gas engines as one source of power for driving the generator used to charge the Central Office storage battery.

It is a well-known fact that gas engines are not self-starting but must be "turned over" until compression of the gas mixture is obtained, exactly as an automobile is "cranked" to start it.

With the smaller size engines the starting by hand is not a difficult matter, but with the larger sizes the services of several men are required, and there is a considerable element of danger present.

For this reason it has been customary to provide an outfit consisting of an air compressing pump and tank. The pump is operated by a belt from a second pulley on the gas engine, and is run until the air pressure reaches 100 pounds per square inch, when the belt is shifted to a loose pulley and the pumping stopped.

When starting the engine enough air is admitted from the tank to the cylinder of the engine to turn the engine over once, and thus give to the flywheels sufficient momentum to compress and ignite a charge of the gas mixture in the cylinder.

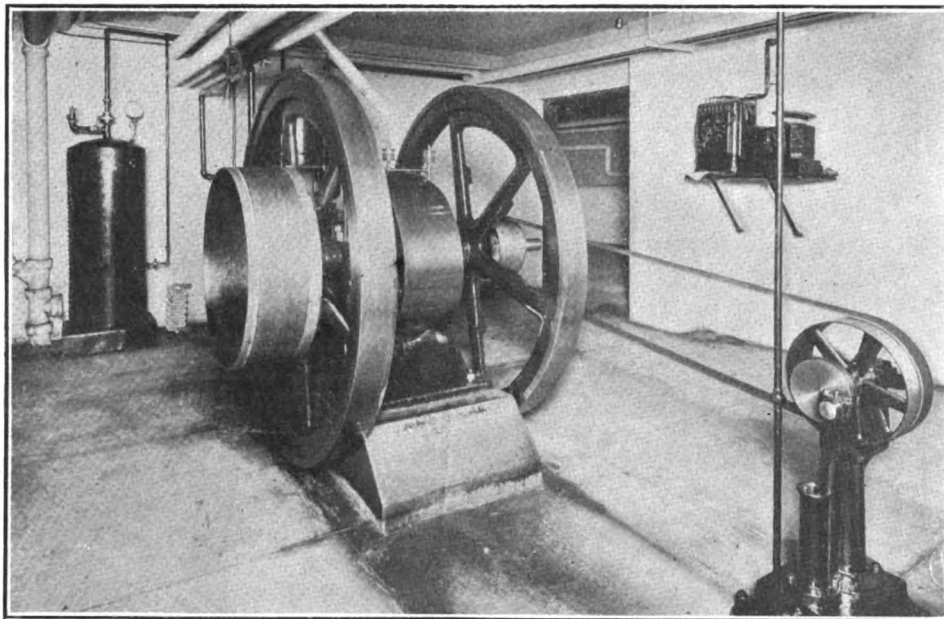
This method of starting has four objections:

1. It requires apparatus which takes up a great deal of room and which is expensive, both in first cost and in maintenance.
2. Unless the gas engine is used frequently, enough air will leak from the tank to reduce the pressure below that necessary to operate the engine. To avoid this it is necessary to run the engine and pump for a few minutes about every third day to keep the air in the tank at working pressure.
3. Considerable skill is required to start an engine with compressed air, and if one or two false starts are made the pressure will be reduced below the working pressure.
4. When for any reason the air pressure is so reduced that it cannot be used to start the engine, the latter must be "turned over" by hand.

It was suggested some time ago that gas engines could be started electrically by using the generator as a motor, taking current from the telephone storage battery. Some successful experiments were made in Baltimore and Washington by representatives of the Engineering and Plant Departments, and the first

installations of electric starting have just been completed in the Main and North Central Offices in the latter city.

The Main Exchange is provided with a 40 horse-power horizontal type White & Middleton gas engine, located in the basement, belted to a Western Electric 30 volt, 800 ampere gen-



Gas Engine with Standard Compressed Air Starting Equipment, Columbia Central Office, Washington, D. C.

erator. At the North Exchange the equipment, including the starting apparatus, is precisely similar, but of only one-half the size.

At the Main Exchange a large double pole, double throw switch is provided on the generator panel in the engine room in the basement which, if thrown in one position, provides for charging the storage battery in the usual way, and if thrown to the reverse position, connects the generator with the storage battery. A resistance unit is connected in the armature circuit while the field circuit is connected directly to the storage battery and therefore full excitation is obtained. The resistance unit consists of cast-iron grids connected 4 in parallel and 5 in series, the total resistance being about 0.02 of an ohm. This resistance allows a current not exceeding 800 amperes to flow through the armature when the latter is at rest, this being the full-load current of the armature, and hence no damage can be done to the latter and the storage battery is also effectually protected from an excessive momentary drain.

The procedure for starting the engine with this arrangement is extremely simple, consisting merely of throwing the large switch to the starting position, which causes the generator armature to revolve very slowly at first, but with increasing speed and with sufficient force to turn the engine; when the switch is first closed the current drawn from the storage battery is about 800 amperes, but this current decreases as the speed of the machine increases; as soon as one explosion has taken place in the engine cylinder the large switch is opened, and the operator turns his attention to the engine, bringing it up to full speed; the switch is then turned to the charging position and the battery will receive its charge.

On the floor at the right of the air tank in the accompanying illustration may be seen the cast-iron grid or resistance unit, which takes the place of both pump and tank.

The cost of the grid with its associated switch and wiring is about one-quarter that of the pump and tank.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Bridgeton District. A contract has been closed changing the New Jersey State Home for Feeble Minded Women at Vineland, N. J., from a direct line to a branch exchange, with two trunks and 13 stations.

The following letter is a reply from one of our Salem subscribers who had toll calls on his bill which he did not understand:

Please accept my thanks for the courtesy shown in your conversation this noon and your evident desire to meet patrons' views.

LORE.

Camden District. A Camden salesman read a news item in the *Camden Courier* regarding an accident to a subscriber in his district. He made a call at the residence the following morning, interviewed the sick man and obtained an order for a telephone to be located in his place of business just across the street. The additional station was immediately installed and a highly pleased subscriber resulted.

CROXTON.

Dover District. Two employees sitting back of a man and woman in a local moving picture theatre noticed that they were much excited over a picture showing an invalid caught and held in her room by fire. A salesman called on the couple while the image was still fresh in their minds, pressed the point home, and obtained an application for service.

PRINCE.

Doylestown District. The Ferndale Telephone Company, which was organized several months ago, added 30 new subscribers during the past month.

During the recent superseding of message rate contracts to a standard rate basis, of a total of 157 stations all were superseded with the exception of 2 subscribers' stations and 4 extension stations.

HENNESSY.

Norristown District. The Plant department has just completed the installation of a new switchboard at the Swedeland Furnaces of R. Heckscher & Sons Company, of this place.

The Pottstown Plant force recently completed the erection of a private line which connects the Pottstown office of the Sanitary Company of America with its plant at Linfield, Penna.

BEERER.

Trenton District. Recently there have been frequent burglaries in the borough of Princeton, N. J. The Company has suffered its share of the loss. The automatic public pay-station coin box located in the waiting room of the Pennsylvania Railroad Company was robbed of its contents and the box found on the floor, badly damaged.

FAIRCHILD.

West Chester District. An electrical storm of about twenty minutes' duration uprooted many of the beautiful shade trees for which Chester County is famed and put out of service over 400 telephones and 200 lines. The local Plant department was on the job immediately, however, and repaired the damage in a short time.

The other day a salesman, after filling out an application for telephone service, tendered it to the prospect to read. On observing the term, "Res. Flat," he informed the salesman that he did not live in a flat but occupied the entire house.

Little kindnesses, little acts of consideration, and little appreciations are all that most of us are called upon to perform, but they are all that are needed to make life worth while,—and courtesy is the mother of all these.

NORA ROCHE,
of Scranton, Pa., Operating Force.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. The Bethlehem *Times* of Wednesday, August 9, printed a lengthy article describing the cut-over to the Company's new central office in that place. The change was made at 9 P. M., August 8.

Wilkes-Barre District. The following interesting news item appeared several weeks ago in the Danville *Morning News*:

Danville has not been slow in adopting telephones both in its business places and private residences. It remained for Will T. Suter, proprietor of Sunnyside farm, however, to carry the use of the telephone into an entirely new field—that of the curb-stone market.

On Saturday morning vendors and purchasers alike in market were amazed to discover that Mr. Suter had a telephone installed in his commodious market van and that at intervals, asking the indulgence of his waiting customers, he proceeded to take orders over the telephone or to communicate with his farm several miles away.

Mr. Suter is always progressive. Whether in matters of farming, road making or in any other relation the proper place to seek him is in the vanguard. He was delighted with the experiment Saturday. He found it perfectly feasible and convenient on driving into market to cause his telephone to be connected with a wire on the street, taking it down after market was over.

The Telephone Pioneers of America

The Telephone Pioneers of America will meet at Boston, Mass., November 2, 3 and 4.

Arrangements as to entertainment and meeting will be forwarded members later. Those contemplating attendance are requested to inform the undersigned as promptly as possible, at 15 Dey Street, New York.

HENRY W. POPE.

CHARLES R. TRUAX.

THOMAS B. DOOLITTLE.



A Glimpse into the Near Future

Construction by the wholesale is done during the milder seasons. During the torrid days of summer many a Plant man earnestly wishes that he might be plunged into the midst of a scene such as the one shown in this picture.

Philadelphia Division

W. RITCHIE, Division Correspondent

As an illustration of the growing necessity of public telephone booths, the Rumsey-Borrell Drug Company, located at 52d and Market Streets, Philadelphia, serves an excellent example. It required a considerable amount of persuasion to induce the drug company to grant floor space for the first booth. As the demands of trade increased, one booth seemed insufficient to accommodate the requests which continued to multiply, and the firm reluctantly gave permission to install two booths. At this stage the store, finding that it was not a matter of accommodation, but of good business by reason of the commission paid, had the number increased to four and later to the present number of eight booths.

As the result of a persistent canvass the owners of the Fuller Building on South 18th Street have had installed a private branch exchange for 60 stations. The switchboard, situated in the center of the first floor corridor, is in the path of people coming into the building. Instead of going direct to the office of the person desired, they make inquiry first of the operator to know whether so and so is in and if they can be seen. Almost all the occupants of the building are instructors of music, and they are unanimous in proclaiming the new system a great success.

Washington Division

R. G. HUNT, Division Correspondent

The Baltimore and Ohio Railroad, preparatory to extending its telephone system of train dispatching on the mountain divisions of West Virginia, has placed a contract for 40 complete dispatching telephones, says the Baltimore *American*, to be installed on the Monongah division, between Salem and Parkersburg, thus equipping the mountain division from Grafton to Parkersburg to handle trains by telephone. The instruments will be placed in service as soon as they can be installed.

Some time ago the Baltimore and Ohio divided the main line of the Monongah division into two train-dispatching districts, placing a dispatcher at Salem to handle train movement west of that point to Parkersburg, trains on the line east of Salem being dispatched by telephones from Grafton. Upon completing the installation of the telephone system, the entire division will be handled by the dispatcher at Grafton.

After sixteen years of control by one party in the national House of Representatives the opposition faction came into power on the 4th of March of this year, and the officers and employees who had been in charge of the large telephone system of the House were superseded by others who were not familiar with local schedules and practices. The spirit of economy was rampant, but after a series of negotiations, during which the new accounting officers of the House made a personal investigation of operating and accounting methods at our Main Central Office, our charges were accepted as just and reasonable, and a yearly contract was signed in terms no less favorable than those which preceded it. Relations were established with the new officers quite as agreeable and amicable as had obtained with their predecessors. The work was conducted mainly by the local Contract Manager.

The long-distance lines between Richmond and Washington are being heavily used in reporting the proceedings in the Beattie murder trial to our local newspapers.

An application has been signed by the Raleigh Hotel for a public pay station private branch exchange, consisting of switchboard and operator's set, six trunks, six stations and five booths. This system is on a commission basis and will be operated by the Company. The hotel is being remodeled and is now the largest in Washington by about fifty rooms.

Maryland Commission's Opinion

(Continued from page 10)

purchase. The objection is made that the purchase of all the stock of a corporation involves the transfer of all its property and franchises, and while by the "Rules of Practice and Procedure" adopted by this Commission, a petition for approval of assignment or transfer of a franchise is required (Rule X, Sec. 3) to be accompanied by copies of the franchise and proposed assignment and also of the laws, or reference to the laws, which authorize the same, not only has the applicant in this case failed to exhibit such copy or make such reference, but, by the express terms of the ordinance granting the franchise, the Cumberland Company is prohibited from assigning or transferring its rights thereunder without the consent of the Mayor and City

Council of Cumberland, and it is further provided that if the Cumberland Company should pass into the hands of any other telephone company without the consent of the Mayor and City Council of Cumberland, all the rights and privileges granted under this franchise shall be and become null and void. Counsel for the applicant admits that the consent of the Mayor and City Council of Cumberland is essential to the validity of the proposed acquisition of stock, and has not yet been obtained, but says that the matter has not yet reached that point; that his company is asking us to approve a contract for purchase, not an actual purchase, and that by the terms of the Public Service Commission Law (Secs. 26 and 41) unless and until this contract is approved by this Commission it has no force or effect, and there is no basis for an appeal to the Mayor and City Council for their consent; that the com-

pleted transaction will require both the approval of the Commission and the consent of the Mayor and City Council, but approval by this Commission is unquestionably prerequisite to consent of the Mayor and City Council, and if it should also be held that the consent of the Mayor and City Council is prerequisite to approval by the Commission, it would be impossible to proceed at all and the matter must remain forever suspended; that it can in reason make no difference in which order the consent and approval come, provided both are obtained, and all interests will be fully protected if we grant approval conditional upon the consent of the Mayor and City Council.

This seems to us sound reasoning, and we will accordingly sign an order approving the contract, subject to the approval and consent of the Mayor and City Council of Cumberland.

THE TELEPHONE NEWS



❖ The Blue Ridge Mountain Resorts ❖

SUPPOSE—just suppose, remember—it is a hot Friday afternoon in late August. You, a more or less humble telephone man, are sweltering in your office in, say, Baltimore. You are almost “all in.” As you are about to give up the day’s work in despair a friend drops in. He notes your wilted look. It is the psychological moment.

“What’re you going to do over Sunday?” he asks.

“Can’t imagine. *Simmer*, I reckon.”

“Never,” he shouts. “Get your grip and your golf sticks and come with me. You’re going to Blue Ridge Summit.”

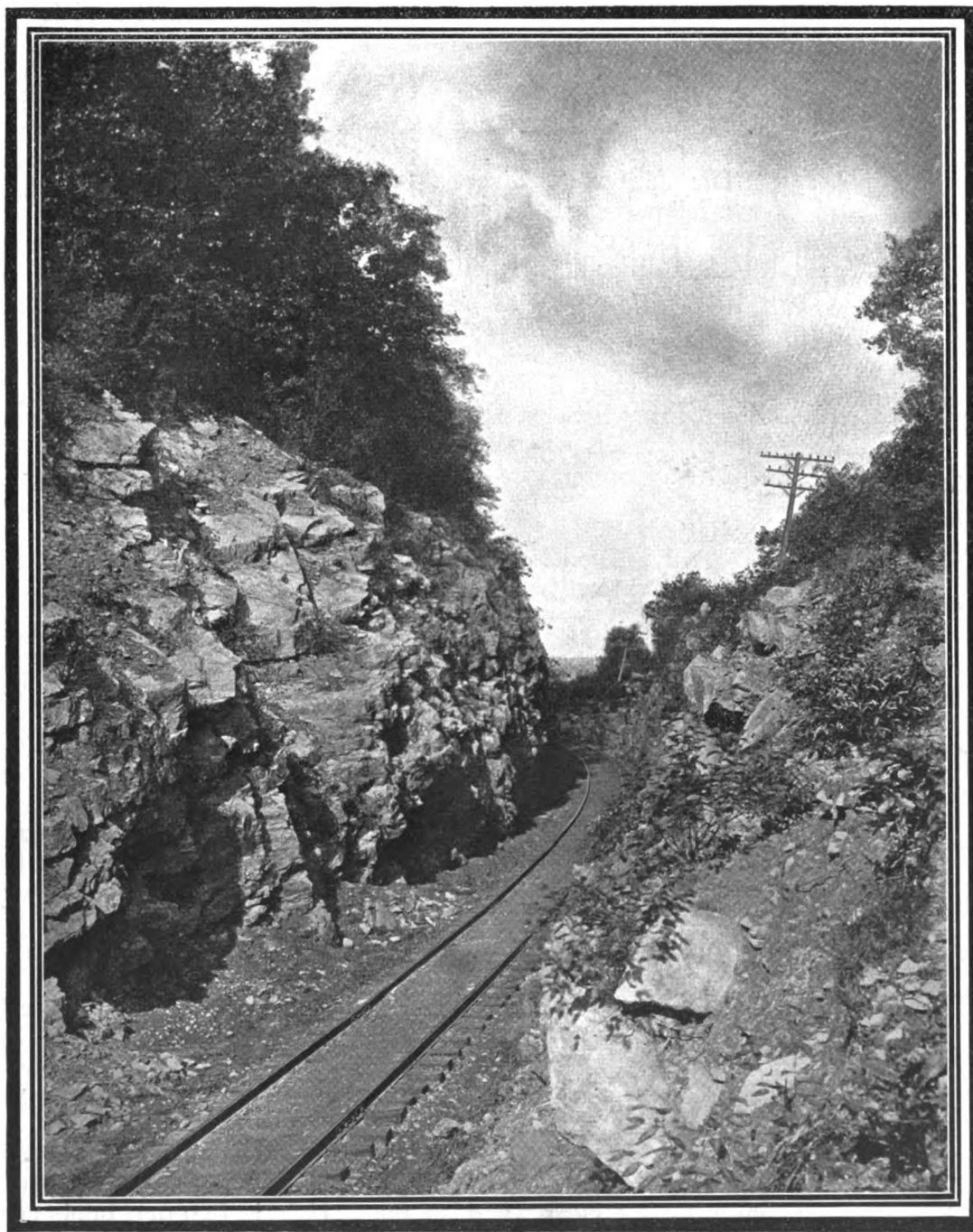
Bang! Down comes your desk lid.

Blue Ridge Summit. Was there ever a cleverer combination of words? *Blue*—that’s plain enough. Even to the most unimaginative mind it suggests its complement, *skies*. *Ridge* brings the picture of a green-treed mountain. *Summit* speaks of a high place, the top o’ the world, a place where breezes blow both day and night. “Blue Ridge Summit,” then, sounds well to you.

Let this be your introduction to “The Mountain.” You go. And what do you find? Let us see:

High at the top of a giant ridge, just where Pennsylvania meets Maryland; where the air is pure, the water is crystal and the sky is azure; there—to locate it absolutely *sans* superlatives, there you find the Blue Ridge Mountain resorts.

There are a number of communities in the region; Monterey, Blue Ridge, Buena Vista, Pen Mar and Blue Mountain are the most popular. Just a mile or two down the mountain side nestles the live little borough Waynesboro—9000 souls, and the heart of the whole vicinity.



Western Maryland Railroad Cut near Pen Mar and Blue Ridge Summit

And best of all, the region is only two hours away from Baltimore, three hours from Washington and four or five from Philadelphia.

So, after a two hour ride, first through fertile valleys and farm lands, then up the long gradual ascent of the mountains, you step from your Pullman into a cool, green bower through which the sun’s last rays are sloping. Your hat comes off instinctively. The breeze is playing tricks—with your emotions and with your hair. Blue Ridge Summit has come true.

That first night you sleep the sleep of a man without a care. It is almost too good to be true.

In the morning, shortly after “jocund day stands tiptoe on the misty mountain tops,” the horses are brought around. You mount and follow your guide down a broad, well kept avenue. Automobiles are in evidence at intervals up here, but horses seem to have the call.

Probably the first thing that strikes your eye is the character of the “cottages” that border you on the right. Each has its own perfect setting of flowers and greens. Comfort, convenience and luxury speak from their every line, from the garage at the rear to the telephone loop entering at the eave.

Presently, on the other side of this same avenue you approach a golf course, tennis courts, base ball grounds and finally a typical country club house.

“The Monterey Country Club,” your friend explains, as you canter past.

For a moment you are tempted to give up the ride and try out the fair-way of the golf course that stretches out level before you

(Continued on page 7)

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Chesapeake & Potomac Telephone Company
The Delaware & Atlantic Telegraph & Telephone Co.
The Diamond State Telephone Company
The Central District & Printing Telegraph Company



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SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII SEPTEMBER 15, 1911 No. 18

Helpfulness

Intra and Inter-Department

AMONG some of our employees there has been noticed, at times, a tendency to hesitate in asking advice or information from those of higher rank, either in the same department or in others. Whether it be through fear of interrupting other work or through over-modesty is not evident, but the hesitancy is noticeable. For example, there have occurred instances in which certain men in the Plant Department have encountered slight difficulties which, through lack of space, were not treated exhaustively in the specification booklets issued by the Engineering Department. Rather than taking up these problems with their superior officers or other employees familiar with the conditions they have attempted to work them out alone and not always with success.

△ △

The Companies' organization is only the means to an end. It exists for the purpose of accomplishing the work in the most systematic way and not for the purpose of placing imaginary barriers in the way of members of any department. With its aid the service is being increased in value and kept at the highest standard; without it, it is hardly necessary to remind ourselves that we would be at a loss how to proceed.

△ △

In certain companies it is common to see the old-style employee keeping to himself all he knows about his own work. He exhibits a kind of ill-feeling toward any who approach him for information about his particular duties. There is an evidence of fear that the questioner may become better fitted to do the work than the employee who holds the position. Therefore, any information vouchsafed is of a

misleading, or at least ambiguous, character.

△ △

With our Company there is no occasion for the "keep-it-under-your-hat" habit. In direct opposition to such a narrow tendency we have booklets or other printed instructions on organization and on practically every phase of the telephone work. With the aid of these new employees may become thoroughly familiar with departmental and individual duties.

△ △

We want to encourage everyone who is sufficiently interested to inquire both about reasons for his own work and about the duties of those with whom he comes in contact.

△ △

The more or less direct association with our fellow-workers in the same department is helpful, but to co-mingle with those in other departments the practice is especially broadening. It leads us to see our work as others see it and often shows us a short cut well worth while. It qualifies us for more difficult and more responsible work. It helps us to know employees and teaches us why they think and act as they do.

△ △

Finally, it makes all of our work easier and pleasanter.

In Defence of "Ain't"

"Say," said a caller the other day, "I want to ask you something. What's your opinion of *ain't*?"

We were non-committal. The caller continued:

"Well, the other day I heard a cable foreman call down a splicer for using the word. It set me thinking. I just dropped in this morning to say that in spite of you and your big dictionary I've decided *ain't* is just about as healthy and forceful a word as you can find.

"Why? Well, it's hard to explain. But imagine a lineman on the top of a 40-foot pole singing out to his helper, 'This *isn't* the right solder.' Or, a wire chief shouting half way across the continent, 'This circuit *isn't* clear,' and so on. *Ain't* is useful in telephony, that's all."

"Is there any particular reason," we managed to interrupt, "why you should come in here and jump all over a poor helpless editor about it?"

"Well, no," answered the caller rather crestfallen, "I guess"—he edged towards the door—"I guess that's right—there *ain't*."

Getting After the Delinquents

The following excerpt is from an exceptionally interesting article headed "Getting the Delinquents to Pay," appearing in the August number of *System*:

△ △

"Making a collection differs greatly from making a sale—in fact it sometimes resembles a sale turned other end to," says the collector for a telephone company. "The salesman 'buries' the money idea until the last of his work; the collector must start with it.

△ △

"In collecting delinquent telephone accounts the great thing to overcome is the put-off. 'I'll look this over and mail a check for it,' is the standard excuse. The delinquent knows that the collector lives in the same town and thinks that really there is no hurry about paying the account. To accelerate the payment, where a put-off is to be reasonably anticipated, the collector pulls out his receipt book and makes out the receipt, with an air which plainly says, 'you are the man who always pays right on the dot.' If he hesitates, hand him the receipt and take out your cash entry book and start to enter it up.

△ △

"If, in the face of all this, he acts very much as though he was not going to pay, it is the best plan to avoid catching his eye and be very busy in the entry, and almost invariably he will make at least a partial payment. If you see he is deliberating on just what excuse to make, it is well to forestall it by giving the conversation a twist to some neutral subject of interest, not in line with collections."

△ △

When one considers this Company's small army of collectors, and of the almost innumerable problems—some weighty, others trivial—that they "meet up" with from day to day, one is inclined to think the writer in *System* doesn't dip very deeply into his subject—as far as telephone collecting is concerned. To be frank, he doesn't. But it's a good hint or two that he lets out; and it's for that reason we pass his remarks along the line.

Frown and you become ill tempered; smile and the inward frowns will disappear. Be courteous and in time, if you are sincere, it will have an effect on your character. This, in turn, will reflect and make your task easier. We should all bear in mind that courtesy is best at all times; it costs little and pays a high rate of interest.

By Florence I. Smith, Scranton
Operating Force

Multiplex Telephony and Telegraphy

By Maj. G. O. Squier

(Concluded)

Your company rents to the government a private telephone line, equipped with standard local battery Bell instruments, connecting the Signal Corps laboratory at 1710 Pennsylvania Avenue with the research laboratory at the Bureau of Standards. We deliberately put on this wire circuit alternating currents of frequencies varying from 20,000 to 100,000 cycles per second, and, by various kinds of arrangements, sought to determine if they in any way audibly affected the battery telephone apparatus. Experiments soon showed that they did not; nothing could be heard in the telephone receivers at either end of the line. The receiver is such a sensitive piece of apparatus that it naturally picks up any noise or hum, and I confess that I expected to hear something from the generator, some kind of a note that was not a direct result of 20,000 or 100,000 cycles, but yet some disturbance that nevertheless was due to the machine. I thought that we would get something audible, and, as a matter of fact, a sound or note could be observed at certain critical points, as the rotor was brought up to speed, but under proper conditions there was absolute silence in the telephones. One reason for this silence will be found in the fact that at these very high frequencies the impedance or effective resistance of an ordinary telephone receiver, one with a permanent magnet or with soft iron core, such as is used in every-day practice, is enormous, and sufficient to choke out nearly all of the current—only a negligibly small amount of such current can get into the receiver to operate the diaphragm. The ordinary telephonic currents, however, pass into the receiver readily because their frequency is relatively low, only about 750 or 1000, or at the most say 2000 cycles; but 20,000, 50,000 or 100,000 cycles would, as I have just stated, be almost entirely choked out. And then, even if some part of these high frequency currents could pass through the receiver, and even if the diaphragm could and did respond to them, and produce corresponding air vibrations, we could not hear them because our ears are so made that we cannot. So, theoretically and practically, there is no possible chance of the high frequency currents interfering with the battery telephone apparatus, and our actual experiments show that they did not.

Once having demonstrated, in a brutal way, that no matter what we sent over that line in the way of high frequency currents, they did not interfere in the slightest with the existing battery telephone service, we were prepared to see if we could use this high frequency current and apply it to telegraphy or telephony, or both. Therefore we applied the ordinary methods used in the wireless art, just as they were, except that, instead of connecting our transmitting circuit with the antenna, we joined it in the telephone circuit. We set up the whole apparatus in the ordinary way as we would a wireless telephone equipment, except that where we would connect the antenna we connected instead the telephone line, which in this case was an all-cable circuit about seven

miles long, partly aerial but mostly underground. These waves slide along this circuit with the velocity of light on the surface of the two conductors, the energy being practically confined and concentrated in the dielectric between the two wires of the cable pair. So all that we had to do was to put in the ordinary transmitter and the tuning elements, with which I assume you are familiar, and tune the line with these tuning

elements and we have all the phenomena under our control in an accurate way, much better than with radio circuits, because the latter are never constant for any two consecutive hours, and even within a few minutes conditions may change enormously, and transmission factors and results are known to be quite different in the daytime and at night. But when we are dealing with a conducting circuit, everything is regular and orderly day after day. We can calculate or measure the constants of our circuits and know that with these constants we can get certain definite results; we can vary these constants at will and know that there will be a corresponding change in the results.

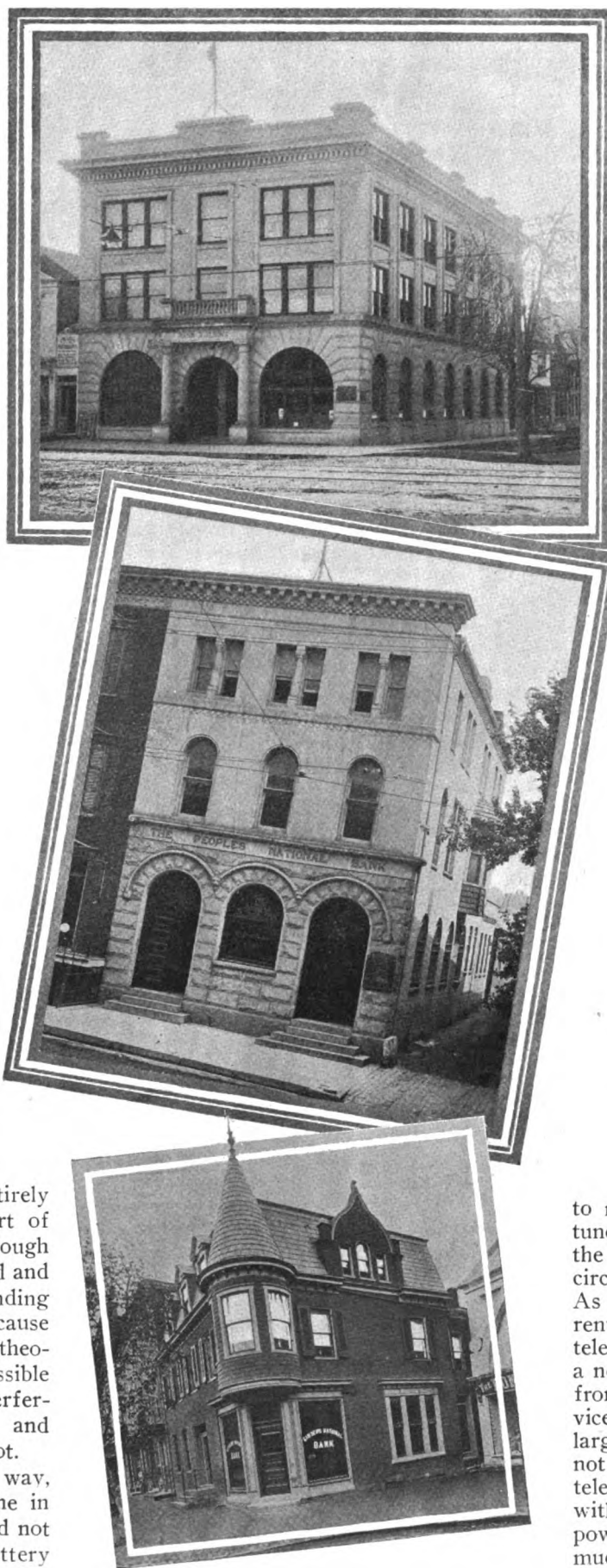
We applied the methods, apparatus and devices that are now used in the wireless art to the metallic circuit with an enormous increase in efficiency in every way. For instance, in the plant which we now have there is a 2 k.w. generator, an antenna 180 feet high, and a transmitter carrying a large current, say seven or eight amperes, and cooled with water, and yet we have been trying for some time to talk wirelessly four miles with this equipment. For the cable line that we have used, the current was of the order of magnitude of two milliamperes at the transmitting end and I do not know how much smaller it could be. It seems to talk just about as well with a small current as with a large one because we do not hear this current; the high frequency current being merely the vehicle that carries the speech and is itself not heard at all—the ear will not allow us to hear. We hear merely the variations of the amplitude of the high frequency currents corresponding to the human voice.

We found that we did not have to use a special transmitter—any transmitter would do, as the current was so small. There was no question of cooling it. The voltage used was very low; in some of our experiments we have gone as high as 22 volts, but in ordinary cases it was necessary to use only 2 or 3 volts. The tuning devices enabled us to build up the current by resonance at the receiving end to many times its normal value by the use of tuned oscillatory circuits. We thus magnified the current and made it possible for the wireless circuit with its detector to receive more energy. As I mentioned a moment ago, alternating currents of high frequency cannot readily enter a telephone receiver, and so the detector becomes a necessary part in this train of transformations from the transmitting device to the receiving device. So the idea of a big plant, big apparatus, large condensers, etc., disappears. As we are not dealing with a power plant, the wireless telephone station will not look as it does now with its large currents, high voltage and big power—all because the whole phenomenon is so much more efficient.

Now, just a word in regard to the way that the speech is carried. Some of you may not fully understand just how this is done and how it differs from the battery telephone, and how you can send several of these messages at the same time and still select them out at the receiving end. I do not know as I can make this entirely clear in a popular way, but I will try to do so.

We had at our disposal a generator which, as I stated before, could be run at any speed to give 20,000, 30,000, 40,000 or 50,000 up to 100,000

(Continued on page 4)



Waynesboro's Three Banking Institutions

cycles per second. We would select some one frequency, 20,000, for instance, and send the current over the line with the transmitter in circuit, the tuning devices at each end, and with the detector in the oscillatory circuit at remote stations. The sending and receiving apparatus was tuned for 20,000 cycles. If we should put 30,000 cycles on that circuit, it would still go over the wire, but would not go into the receiving circuits at the remote end at all, because in accordance with the general principles of tuning each circuit has its particular natural period of vibration just like a pendulum or a tuning fork, depending upon its electro-magnetic constants. When a current passing along a wire comes to such a local tuned circuit it goes into it if the current is of the same frequency as that to which the circuit is tuned, but it will not go in if it is not of the same frequency. This property of "tuning" is made use of in securing multiplex conversation. So, with the set-up that I have explained, if the receiving circuit is tuned for 30,000 cycles, for instance, we can run the generator at 30,000 cycles and get the desired oscillations in the receiving circuit; but if we run the generator at 20,000 or 40,000 cycles, the line current will be out of tune with the receiving circuit, and we will get no effect in it. As you can readily see, our multiplex system is based upon principles that, by having several suitable generators, or several different frequencies from the same generator, we can obtain several different high-frequency currents and can superimpose on each of these several currents a telephone conversation or Morse telegraph signals; we can then put these high-frequency currents all on the same cable pair or aerial line, each frequency acting as a vehicle to convey the speech or Morse signals to the distant end; and finally by having several oscillatory receiving circuits connected to this line at the receiving end, all differently tuned and each one appropriately tuned, we can sort out, as it were, the different vehicles, as each can go only into the circuit tuned to receive it, and the vehicle in each case will carry along its particular speech or Morse signals into the electric ear—the detector—from which the telephone receiver readily picks them up and passes them along to the human ear.

Now, the number of frequencies that can be put on a line without interference at the receiving station, no one can tell until we know the constants of the line and what are known as the selectivity curves. We have made a study of this particular private line—a superficial study of it—in the paper which I have here, where we have constructed the selectivity curves and the resonance curves at different frequencies with the line both open and closed at the distant end. We made resonance curves at the receiving end, and, in general, went through a series of tests that would normally be made on such a line from a wireless engineer's viewpoint.

Now, the ohmic resistance of the line itself seems to be comparatively unimportant. The operator, with his back turned, cannot tell whether only one conductor is being used or whether both are connected together in parallel to form parts of a grounded circuit—that is, he cannot tell with certainty, although the resistance is halved and the capacity is increased. Trebling the resistance apparently makes very little change in either the loudness of speech or the magnitude of the Morse signals over this particular line.

As to the general plan of multiplex telephony, the thing which I wish to emphasize is that the multiplex is adaptable to the regular telephone plant of to-day. Having had experience in wire telephony, I believe that it will be hard for you

to realize that we can put these foreign high frequency currents on this line and yet not disturb it. You know what a good telephone line is, how it picks up all sorts of things and hears everything around; you know how carefully you must protect it and insulate it. It is an important matter for you to realize that we can deliberately put on this line a large high frequency current and yet leave it absolutely silent and undisturbed as a battery telephone line. We cannot detect by listening whether this foreign current is on or not. There is no possible way of detecting it in the battery telephone, as I have already explained. There is no chance for interference, because even if the foreign currents were present in the telephones we could not hear them.

Perhaps you may not clearly understand why cross-talk from the high frequency side cannot be heard in the battery side, and vice versa. Why do we not hear the battery telephone talk in the detector circuit? It is possible to do so in untuned circuits, but it must be remembered that the high frequency side is tuned to a period above audition and cannot therefore receive any audible frequency. The combination of suitable small inductances and very small capacity condensers, absolutely blocks out of the detector circuit all the battery telephone talk that is on the wire so that "cross-talk" between these battery instruments and the high frequency circuits is entirely eliminated. For instance, we can ring on the ringing circuit of the local battery telephone set at 30 cycles and 80 volts, directly on the line, and yet the receiving circuit of our high frequency apparatus will be absolutely silent. Even with a power current flowing nothing can be heard in the high frequency side because we use a loose coupling—the receiving circuit being coupled to the line with an air core transformer which is efficient at the ultra-sound frequencies but is inoperative at audible frequencies.

Thus we have here an absolutely clear separation based on fundamental principles—the construction of the ear and the possibility of getting high frequency sustained waves of regular sine form to act as a vehicle for carrying the speech waves.

Another important result that accrued was the possibility of using a single wire for telephony. As you know, the universal practice now requires a double wire, as otherwise we are disturbed by foreign noises, such as induction and earth currents. But if we use a single wire and connect it to earth by a variable capacity condenser of the order of magnitude of a thousandth of a microfarad and use an inductance of the order of magnitude of a millihenry and tune that whole circuit and earth connections to a period such that it will receive only waves above audition the wire is absolutely silent. There is no chance for anything audible to get on to it, either from the earth or from the air. One of the first things which was done was to tune one wire connected in this way and see if it was actually silent when all sorts of disturbing elements, such as 60 cycle power circuits and the like were induced on it as under the ordinary conditions prevailing in a city. By tuning the single wire circuit to a point above audition we found by actual experiment that nothing did get on to the wire, and so the road became easy. We found that it was possible to put a conversation on a single wire with excellent results; that is, the use of the high frequency currents makes the single wire or grounded circuit possible for telephony. We cannot, however, undertake at once to revolutionize present practice and abandon the battery telephone and two wire circuits where they already exist. It would be well enough if we were building a new system in

some new country, but in places where the present system already exists it is not advisable to attempt to abandon it. In adapting the multiplex system to a metallic circuit battery telephone line we can superimpose the high frequency currents on each single conductor of the pair, making two grounded circuits of them, or on the two as a metallic circuit, or any combination of these.

With regard to the engineering data collected here I will say that we have made some interesting measurements which will be available in due time to anyone interested in this subject. To anyone who wants to use this data now, I have no doubt but that the Chief Signal Officer of the Army would be glad to give him an opportunity to examine it. We wish it understood that this work is absolutely free to the public and that the patents which have been taken out are perfectly free to any person or corporation who wishes to use them. The desire is that if they are of any use to any one they may be freely used by all who wish to do so.

We were careful to have no special form of apparatus mentioned in the patents and they do not pertain to any piece of apparatus, and they were purposely written to leave open to engineers every possible professional advantage. I believe that there never was a better chance than at present for engineers to go ahead and fill in the gap in the theory between pure radio-telegraphy and wire telegraphy and telephony.

I believe also that this is a good opportunity for the existing wire companies to enter the wireless field and to do it without too much abruptness, because they would not have to build a lot of towers all at once nor make a lot of radical changes in their system. The circuits can be installed and put into commission without interrupting the present service and operating methods in any way. It would be easy to install a multiplex circuit between New York City and some distant point, such as Chicago, without disturbing the traffic in the slightest. As there is no question of high voltages, tall masts, or anything of that sort, I think that it is a logical thing for large telegraph and telephone companies to go into the wireless field gradually. They already find it to their advantage to be interested in ocean cables.

So you can commence to get into the wireless field in this way, by using small wireless apparatus on your wires, and you will get into that field gradually and almost without knowing it. As time goes on you will get further into it until your submarine cable station on the coast will become also a receiving station from ships at sea, and in that way the same management will most naturally occupy three fields—the wireless field, the ocean cable field, and the land wire field.

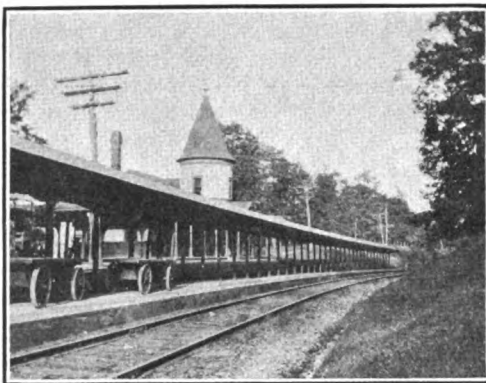
Another point to be remembered is that since each of these multiplex circuits is both a telegraph and a telephone circuit, the much vexed question of the relative merits of the two is, I think, largely solved. For instance, in a leased wire business, such as brokers want for ascertaining prices, and for train dispatching and railroading, I cannot conceive anything better than having this combination of the two, because this long-mooted question of whether you can dispatch trains best by telephone or by telegraph is settled right here. If you want to take three-fourths of the message or train order by telegraph, or only one-fourth, you can do so and you do not have to move out of your chair, as the apparatus for both interchangeably is right before you. The same receiver is used for

both—you can talk most of the message and when you come to something that is particularly important, the train number, for instance, you can telegraph that, spelling it out in the Morse code. The same is true with the broker. If he is afraid that the check will be wrongly made out he can spell out the number and the amount in Morse characters and talk the rest of it. In other words, this question of telephony and telegraphy is brought right down to one circuit. When you lease a man a wire you lease him both services; he can take his choice as to which he would use at any particular time, and then if he cannot get what he wants, with both of them at his disposal, it is his own fault. This straightens out some questions that have been more or less difficult to handle. It enables one company to handle the whole thing at the same time—the telephone business, the telegraph business and the wireless business. Your regular telephone staff becomes used to wireless and gradually you will find its advantages. In outlying districts, for instance, if you had a telephone man who knew about wireless also you could establish a little station—out in a camp if need be—there you would be ready to do business.

Now, if there are any questions that I can answer for an audience of this kind, made up of practical men who, I know, are deeply interested in this subject, I would be very glad to do so. This is a large and important subject and difficult to handle in a short space of time, but I enjoy speaking to men who are interested in this particular field a little more than to any other set of men that I know. Our ambitions

will be gratified if these experiments succeed in contributing to the advancement of the art.

I am such an optimist that I believe that the time is near at hand when a tremendous expansion in the fields of electrical inter-communication will result in many different directions.



Station at Blue Ridge Summit, Pa.
(See article, page 1)

For a number of years I have thought that the number of cables to Europe should be multiplied. I do not believe in tearing down and abandoning good, serviceable, structures, and just because wireless has come along, in saying that the cables are of no more use. History does not show that. The more wireless we have to Europe the more cables we want to Europe. You will find that the question is one of advancing to a new plane of opportunities, and the time is going to come, I thoroughly believe, when our neighbors will not be defined geo-

graphically. We have to have neighbors, of course, and the only reason for their all being located at present comparatively near to us is because to talk to people very far away by means of wireless, wires or cables is very expensive. Therefore I think that the development of the facilities which have been outlined will, by ultimately reducing the cost of long-distance communication, be of great importance in advancing good feeling and neighborliness, and certainly should greatly make for the advancement of commerce and trade.

What we want are more wires and more wireless, and more cables everywhere. It is not a question of tearing down—it is a question of adding up, so in the development which we have proposed it is not planned to do away with any wires at all. We want more of them, we want more cables, and we want more telephone conversation—to make it possible that more people can talk to people farther away, so that your neighbor a thousand miles away would be as accessible as your neighbor in the same town, while people of different countries would be able to communicate readily with each other. We should have neighbors in England, and there is no reason why we should not have neighbors in Germany. The reason that we have so few now is because we cannot communicate with them easily and cheaply. We are practically deaf and dumb to every one except to those near to us geographically. This is, perhaps, an Utopian idea, but I believe the development and expansion is coming and if, by our investigations we have made any contributions to that happy end we are very much pleased.

Comprehensive Supervision

"All business as now conducted requires specialization and technical education; in fact so much scientific knowledge that the distinctive line between 'business' and 'profession' is fast disappearing."

In the June 15, 1910, issue of this paper an appeal for specialized endeavor was made—with the thought that while there is a broadening effect to be obtained from study and performance under general or diversified conditions, yet it may be safely said that maximum result, whether in handling goods or services, accrue through specialization. With no view of inferring that this is not equally true at the present state of our development as a commercial enterprise, it may be opportune to comment on the faulty though perhaps frequent tendency to look upon specialization as the entire answer.

Our organization as it to-day exists has been built up in conformity with what have come to be recognized as standard telephone practices, practice which *per se* are known to be good. And by practices are not here meant routines, which change as the immediate conditions demand, but rather the broader basic conception of our daily routine undertakings.

Moreover, supervision has shown us that these same good practices are being applied with intelligent understanding of their object. But herein, perhaps, lies a trap, the danger of our sitting comfortably back, over-secure in the unalienably snug thought that we are doing what and all we are told to do.

Mr. Frederick W. Taylor, in a recent book on "Scientific Management," a work replete with new thought on time and motion studies and the savings they may effect in modern business, has expounded the theory of specialized endeavor to an elaborate degree—pointing out that among the various methods and implements used in each element of each trade there is always one method and one implement which is quicker and

better than all the rest, and that this one best method and best implement can only be discovered or developed through a scientific study and analysis of the methods and implements in use together with accurate motion and time studies.

It is to be appreciated that the elaborate time and motion studies that are now being made everywhere in the field of manual labor are not new words in our business. Telephone pioneers and historians recite to us the practices of ten and fifteen years ago in the operating room, on the pole line, and in the business office—and there can be no employee in our Company that has failed to appreciate our progress in handling calls, stringing wires or selling service—moreover that this progress has set a standard of pace for all commercial enterprises. Switchboards have been so arranged that a minimum physical effort on the part of the operator is necessitated in the completion of a connection. At a recent meeting of the Philadelphia Telephone Society, one of our plant men explained, with elaborate substantiating figures, how, through the introduction of new devices, we have minimized our physical, mechanical and time effort expenditures in the completion of given pieces of work. Similar innovations in the Commercial department have worked wonders—but in this department, as in others, while our time and motion studies have accomplished magic results, yet it must be appreciated that in some particulars, at some points, there are drags which are necessarily impairing our efficiency as a department and as personal units.

Only recently has an efficiency study of one of our district offices been undertaken and completed by a student of this question. This study

was outlined with a view to determining first—whether we can advantageously flatten out any peaks in the office work, by shifting work, or duties, etc.; second—whether we are employing the proper kind of labor for the work to be done and supervision thereof; third—whether the labor is properly assigned, *i. e.*, is the cheap labor doing the cheap grade of work and the higher priced labor doing the more particular work of each class; fourth—whether the contract employee is slowing up when the collection work is rush, and *vice versa*; fifth—whether the value of certain reports and checks justifies the cost of the office labor plus certain other costs.

It is noted that this is not exactly analogous with the studies that have recently been made in the line of scientific management. The latter effort has taught us the maximum efficiencies in work such as laying bricks and handling pig iron—efficiencies that have been secured through the perfection of applied physical effort in those lines. But our task, so it seemed to the Commercial department, at least, appeared to be rather that we should not so much further accelerate the completion of a given piece of work, but that we shall assign our several work units in such a way as to permit of their accomplishment without any perceptible lost interval between the completion of one and the undertaking of the next. Not that each piece of work is being completed in a minimum period of time or with a minimum effort, for we know that supervision is making possible the quickening of each man's effort each day. But what seems to be most important is a systematic planning.

It is thought that in this latter regard we are experiencing losses, losses that impair total effi-

(Continued on page 6)

Comprehensive Supervision

(Continued from page 5)

ciencies and losses that affect the employee as well as the company. "Soldiering," we feel, is unknown in the telephone business—that is, soldiering of an intentional nature. But we cannot fail to recognize as equally disastrous the condition that may result from our supervisors not so laying out our work that we may labor at a satisfactory efficiency throughout the working day. Obviously, as employees it is to our advantage that the latter condition shall prevail.

Referring to Mr. Taylor's treatise on "Scientific Management," may he be quoted as saying: "For every individual who over-works there are a hundred who under-work—greatly under-work—every day of their lives and who for this reason deliberately aid in establishing those conditions which in the end inevitably result in low wages."

It is not desired that an unpleasant comparison be drawn. Mr. Taylor is here speaking of intentional under-work, and in the telephone company we feel that this intentional under-work is not present. But we do feel that there is unintentional under-work, conditional on someone's failure to lay out the job in such a manner as to utilize continually the mental, physical and time forces which are at command.

The Commercial department efficiency study just mentioned brought to light some of the leaks resulting from this, what we had best not call under-work but rather under-planning. By very elaborate and accurate computations made on the occasion of this study there have been secured complete records of the endeavor of each employee in the district observed—records that indicate the detail of his work and the portion of his time expended thereon.

An organization chart was prepared showing the several employees of the district office together with the regular duties. On this chart was set down the exact amount of work of each particular kind performed by each of these employees during the month, which record was checked against the employees' personal observations recorded on forms provided for that purpose. It was not possible to check the time reports of outside employees in a similar way, but the work of the salesmen and adjusters was not investigated to the extent of the office force, in that the study did not comprehend essentially more than an investigation of inside employees and practices.

Collection cost figures were secured in sufficient detail to indicate the amount of time and salary expended in receiving payments at the counter, receiving payments by mail, balancing collections, making deposits, reporting collections, and mailing receipts. In this work it was found there was an abnormal peak during the first few days of the month during which time the collection force was extremely busy, and naturally the cost per collection was correspondingly low. After this first rush, it was observed that the work perceptibly slackened until the end of the month, and that after the 15th the force ceased to work at anywhere near the efficiency that was displayed during the rush period. It is appreciated that our collection routine has necessitated such a condition. Yet in the district office observed it was noted that the collection force, although compelled to work a total of many hours overtime, received very little assistance from other employees during the peak periods. On the other hand, during the latter half of the month, when the collection work was slack, the cashiers and others did not appear to have any regularly assigned additional duties. In the particular study made it was suggested

that one of the collectors be assigned to the assistant cashier three hours each day during four or five of the busiest days which would probably eliminate the over-time, and that the cashiers be assigned from three to five employee hours additional work after the 15th of the month calling delinquent subscribers. It was thought that such an experiment in this district would result in so distributing the collection work during the month that a total increase in efficiency for the office amounting to about 50 employees' hours per month would result, at the same time most of the over-time would be eliminated.

So too with payments made without return of the bill rendered by the company, it was observed that such payments cost about twice as much to handle as payments made with the return of the bill. The extra time required for this work was estimated at something like nine hours in this one district office for the month. Although the extra labor cost is small, yet it would amount to several thousand dollars each year in the entire territory, most of which could probably be saved by a plan which might be devised for educating the public to return their bills with payments. This is only a small detail, but it appears to be an instance where the letter of our collection routine has been followed without thought as to reasonable educative methods which might be applied in teaching the public to make possible the simplifying of our work.

The careful time and motion study of the work of cashiers at their windows brought to light a condition which very probably exists at most collection centers. It is noted that the cashiers do a large part of their work at their desks, several feet from the collection window, and that they were obliged to leave their desks and step to the window whenever subscribers presented bills for payment. An enormous amount of lost time was necessitated by this continual jumping up and walking to the window and then back to the desks. Accordingly a suggestion was made that desks be so located that the cashiers may receive payments without leaving their chairs—simply by turning around to the window when necessary, and back to the desk when the payments have been completed.

Details like the enclosing of a receipted bill in a window envelope and the sealing of these envelopes were observed. It was found that no two persons inserted a bill in the window envelope the same way, and the desirability of the best and quickest method was obtained and pointed out to the entire force. One method of sealing envelopes was to pick up each one separately, moisten the flap with a sponge and press down the flap. Another method was to lay the envelopes in a row, with the flaps extending out about an inch and a half apart; the flaps of twenty to thirty envelopes were moistened with a single movement of the sponge, and pressed down one at a time as the envelopes were picked up. Forty per cent. saving of time resulted from the latter method.

These are, to be sure, minor points, but they are mentioned as particular instances where an attempt was made to apply the principles of motion study to the work of a district office, and they surely indicate the possibility of increasing the efficiency of office employees through the adoption of the simplest and most effective method in handling work of this character. In this same connection it was noted that the bill forms were so near the length of the envelope that it was difficult to insert the receipted bill in the envelope. Very probably this condition has been unconsciously appreciated by a hundred clerks for several years, but we do not find it a matter of record that the planning genius of any district office has made serious protest on that score.

The work of balancing collections, filing stubs and handling delinquent accounts presented no serious leaks, but a study of the time consumed in the latter detail indicates the propriety of the careful study and education of our subscribers to pay their bills promptly and in accordance with their contract. It is thought that the average employee too greatly relies on our existing routine which provides for irregularities, irregularities which might be largely done away with if we may take the subscriber into our confidence and teach him the proper method of complying with the reasonable requirements that may be prescribed. All routines are good only so far as they are necessary. We provide elaborate methods and employ clerks to handle delinquent subscribers—and this condition is proper inasmuch as we do have delinquent subscribers. But the supervisor of a collection force is lax in his supervision if he accepts and complies with these routines arithmetically, without the endeavor to correct the conditions which make them necessary.

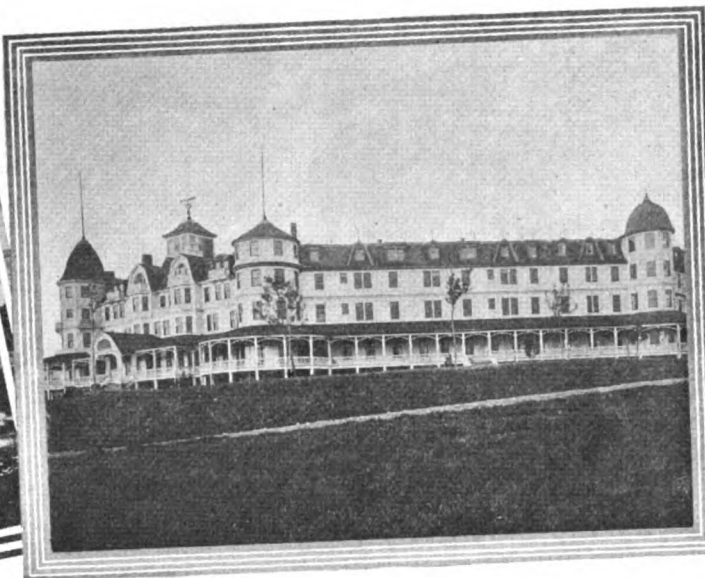
Collectors state that the same subscribers are, as a rule, delinquent each month. While the office study appears to be following the collection routine closely, it is thought that much of the expense in following up delinquent accounts could be saved if greater efforts were directed towards curing habits of delinquency. Many subscribers who could very conveniently pay their accounts during the current month make a practice of waiting until the following month's bill is received or until they are called by telephone or visited by a collector and then pay only the bill rendered item. It was observed that 37 per cent. of all delinquent accounts are paid in part, which involves an additional expense of handling part-payments which is nearly twice the cost of handling payments in full.

The question as to the advisability of following up delinquent accounts by telephone or by personal interview has been much discussed and, in the case of this study, elaborate observations were made as to the costs involved each month. During one month's observations 493 subscribers were personally interviewed at a cost of \$42.47, while 995 telephone interviews were made at a cost of \$16.22. The difference in cost is not alone to be considered. There may be an advantage in personally interviewing a particular type of delinquent subscriber, and perhaps it is impossible that a fixed and regular practice may be decided upon. However, this question is worthy of minute study in each particular district, and the relative efficiency and cost of personal and telephone calls should be carefully considered.

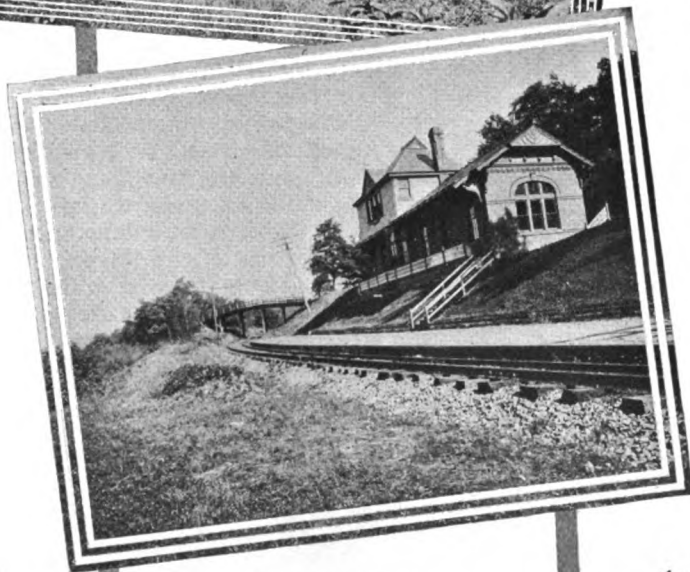
Observation of the collection of directory advertising accounts indicated that the cost of collecting such amounts is abnormally high, and it is thought that perhaps here too a sufficient study has not been made of the conditions that prompt our directory advertisers to delay payment of their accounts until the collector calls. To be sure we have no means of "denying" directory advertisers' accounts, as we have subscribers' accounts, and in all probability directory advertisers will always be less prompt in making payments than service subscribers. But here is an opportunity for education that may result in materially lessening the burden of time, effort and cost.

The collection of receipts at automatic public telephones and balancing these collections present several interesting questions, among which was a detail, small to be sure, but significant. It was observed that the time required to count the coin and balance the total collections after

(Continued on page 12)



Buena Vista Springs Hotel



Upper to Lower :
Blue Mountain House
Vacation Lodge
Blue Mountain Station

The Blue Ridge Resorts

(Continued from page 1)

almost as far as the eye can reach. But your friend persuades you that it is better to postpone this pleasure until later—he has other things in mind for this morning.

Then comes a sharp turn to the right, a winding, easy climb and step by step you mount to the famous Monterey Terraces. As you

through Franklin County and then turn south, tapping the richest parts of the southern countries wherever it was found advisable and convenient. Stevens, it should be remembered, had extensive interests in Franklin County. This probably accounts for the aggressive way in which he stood sponsor for his railroad proposi-

ascend each summer home seems to outdo its neighbor. At last you have reached the highest point of the Terraces; you halt your horses for a moment and your friend points to a mountain gap far across the checkerboard valley.

"Gettysburg Gap," he says. "Look sharp, near the mountain to the right, and you'll see the spires and monuments of Gettysburg itself."

Probably no other of the many views you may obtain will give you such a thrill as this very one. There, nearly 30 miles away, sparkle the granites and marbles of the historical battlefield. High above them you can dimly see the towers of its churches and of Pennsylvania College, where, perhaps, you have had friends or, it may be, where you have attended school.

Twisting here and there throughout this particular neighborhood there is a strange looking grassgrown ditch that looks as if it might have been meant for a railroad cut at some ancient date. And that, it transpires, is exactly what it was. It is the remains of "The Old Tape Worm Line." If this is going back a little too far for your memory of historical affairs, you will probably inquire further into the details of that interesting old case and you will learn something like this: The "Tape Worm" line was an idea of Thaddeus Stevens, Pennsylvania's "Grand Old Commoner." About 1835, while he resided in Gettysburg, he conceived the idea of building a railroad to start at Gettysburg, run down

tion through many years of discouragement. The State finally granted him a large appropriation to take up the work. It was at the time of the great craze for internal improvement and development, and immediately upon receipt of sufficient money the managers of the railroad began work all along the proposed line. They worked lustily, no doubt, and spent just as freely. Results followed rapidly; that is, negative results. Their funds were soon exhausted, the development boom collapsed, the State refused further aid and operations ceased. History tells us that not a mile of the railroad was completed. The long worm-like depressions in the vicinity of Monterey and Blue Ridge Summit certainly bear out the statement.

A wide detour is now made.

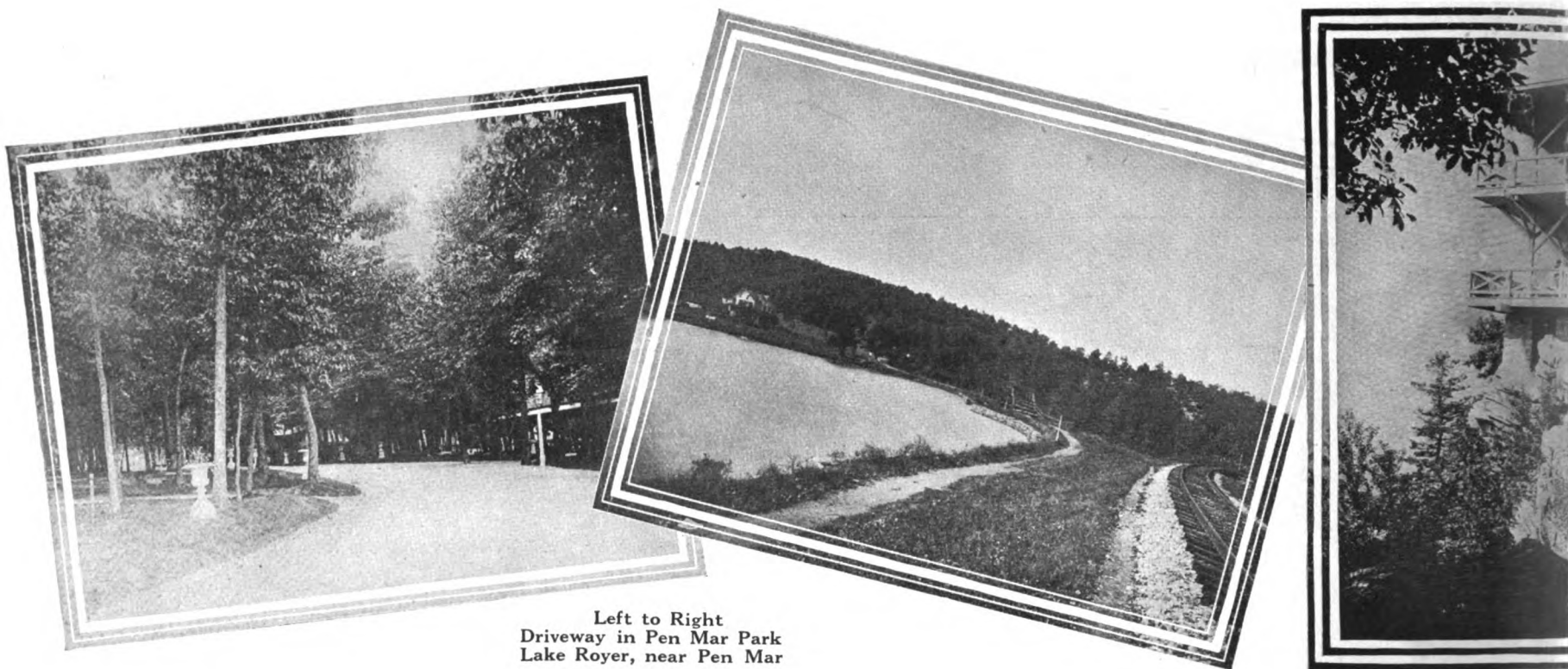
"I want to show you a little stone that has a rather interesting history," says your guide.

A sharp gallop, and you come to the spot, dismount and step probably a half a dozen paces into the dense woods at the left of the road. Your friend turns sharply, places his hand on an upright wire cage about four feet high and points to the ancient looking stone within it.

"See that stone?" he asks. "That is a crown stone of the famous Mason and Dixon's Line. The 'Crown' stones are placed at intervals of five miles; plain ones mark every intervening mile. On the southern side you can dimly see Lord Baltimore's coat of arms, and on the opposite face the more familiar insignia of your own William Penn. I suppose I hardly need explain their significance.

"This stone," he continues, "is one of a great number shipped to this country from England about 1767 for the very purpose they now serve. They were unloaded somewhere along the Delaware line. Two young Englishmen by the name of Mason and Dixon then made the historic survey which later came to mark a commonly accepted boundary between north and south. Many of these stones had to be carried up the steep mountain paths on the backs of mules—one stone to two mules, securely strapped between them. At that time they tell me each stone was at least four and a half feet out of ground. As you see, they are now within a few inches of the surface. Why? For the simple reason that lately they have become so interesting to visitors that everyone who came to see them considered it his or her duty to chip off a piece of the stone as a memento of the occasion. Uncle Sam had to step in to prevent their total destruction, and a few years ago he set about re-placing the same old stones and at the more exposed locations he covered them with iron wire cages just like this one. A re-survey of the Mason-Dixon line was also made about six or seven years ago. It was found almost absolutely correct. It runs through the heart of the Blue Ridge resort region. One of these stones stands a few hundred feet south of the 'Summit' Station; another can be found within a few feet of the Pen Mar Station. And that is the story of this little gray stone."

Luncheon over, you naturally want to get back to that golf course, that is, if you're a devotee of the sport. It is a corking little nine hole course of something more than 2,000 yards. It is fairly well filled with players, and as you take your stance something tells you



Left to Right
Driveway in Pen Mar Park
Lake Royer, near Pen Mar

the wine in the air of this place is going to stretch out your every drive to its greatest and straightest length. As you follow your ball you learn a little more of the Monterey Country Club. In the first place, it is kept up entirely by the cottagers and through private subscriptions and nominal dues. Any member or his guest has all the numerous pleasures and privileges of the club. It is modern in every respect. There is a well-appointed tea room for the ladies and every afternoon you will find a large representation of the colony seated there chatting and sipping their beverages, the while they watch the golfers or tennis players out in the open. Few mountain resorts can boast of such a well-managed institution.

It is Pen Mar in the evening, of course. Here is another interesting name for you. If I am not mistaken, half its charm comes from the fact that nine people out of ten discover its derivation for themselves. *Pen* from Pennsylvania, you see; and *Mar* from Maryland—meaning of course that the place is located partly in one state and partly in the other. Assuredly it means also that it is a spot where pleasure-lovers from both Commonwealths convene. This park, you learn, was formally opened on the 31st of August just 33 years ago. The famous 5th Regimental Band of Baltimore officiated on that occasion. This year the anniversary of the date was recognized and celebrated in splendid style.

Pen Mar is becoming more of an all-year

resort every season. At the present time there are about 100 cottages, owned mostly by people from neighboring cities and from Waynesboro. The splendid order maintained in the vicinity has had a great deal to do with this steady growth. In the very beginning the Maryland legislature made a wise provision—that no intoxicating liquor could be sold within a certain distance of the park. Besides, it is well policed. Good order is insisted upon. At the dance pavilion, where you will hear the best of orchestra music from 11 A. M. to 11 P. M. daily, sons and daughters of the most respected and most prominent citizens for miles around safely gather. On special occasions as many as 15,000 people visit the park in one day.

This completes your day, and a big day it was. You retire with the conviction that cities are good enough to work in, but that a mountain top, and especially the Blue Ridge mountain top, is the one place to enjoy life.

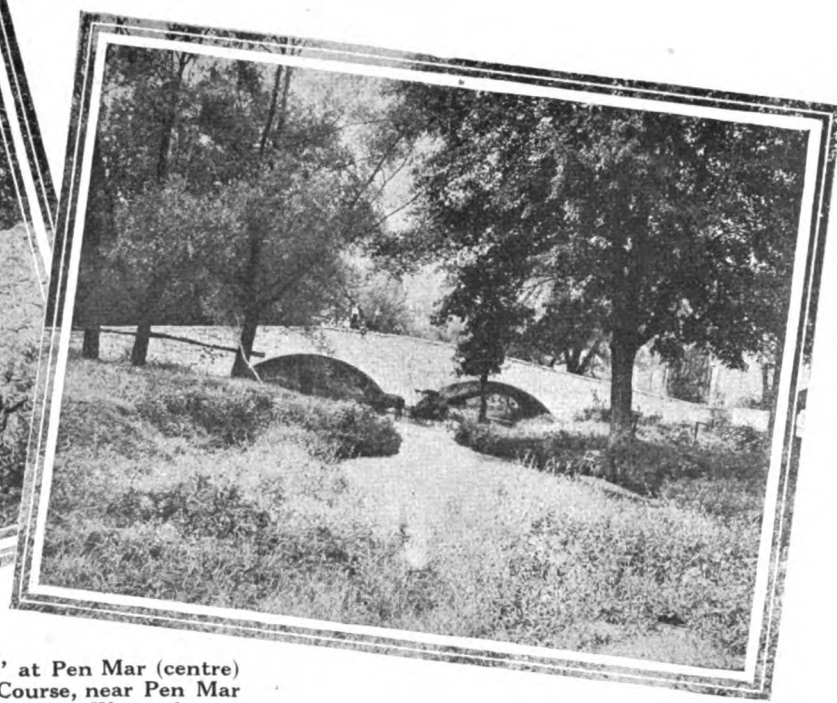
The next day is Sunday, according to our imaginary schedule, and in keeping with the day you are glad to learn that the plans are to drive quietly over the sometimes steep but always well-kept mountain roads in the vicinity of Pen Mar and Buena Vista.

Buena Vista Springs has a mammoth hotel, a colony of cottages and a reputation for entertaining distinguished guests. A great many Washington officials, including foreign ambassadors and their suites, have the Blue Ridge habit. It is rather remarkable to note that when they once spend a season at this resort they usually come back for more. This year the Japanese ambassador and his elaborately outfitted staff constitute the main attraction for the curious.

Near Pen Mar is the picturesque freak of nature known as the Devil's Race Course. This is a long stretch of greenish rocks, with absolutely no vegetation growing between or on them. At one time it probably was the bed of a mountain stream. Now, by some strange phenomenon, the rocks are on the surface and the water is underneath. You can hear it rushing through its subterranean channels. Another feature of the Race Course, one not so pleasant to contemplate, is the fact that the rocks are infested with snakes of several kinds and all sizes. "Rattlers," however, seem to be in the great majority.



End Views: Cottages at
Central Views: Scenes at



"High Rock," at Pen Mar (centre)
Devil's Race Course, near Pen Mar
Welty's Bridge, near Waynesboro

As you climb on up the mountain you presently come to the observatory at High Rock. It is a three-story structure and rises about 40 feet above its rock foundation. They say it is necessary to anchor it to the rocks by massive bolts and chains in order to preserve it during the gales that blow at this high point. It is about 2,000 feet above sea level. As you stand there looking first into Pennsylvania and then into Maryland, you feel that it has been aptly called "the place of perpetual breezes." Straight down below the observatory falls a precipice nearly 200 feet deep. About 1,000 feet below the railroad winds its sinuous course down the mountain. The valley, broad and checkered, lies beyond. Your guide points out to you the steeples of Chambersburg, 24 miles away. Then he turns and shows you the cluster of buildings that is Hagerstown, just about as far in the opposite direction. The blue peaks of the Appalachian Mountains skirt the horizon and form an entirely fitting background for the picture.

There is just one higher spot than this. It is known as Tip Top Tower, and is located on

the summit of Mt. Quirauk, 2,500 feet above sea level. From this altitude you can see, on a clear day, into 22 counties of the four states of Maryland, Pennsylvania, Virginia and West Virginia. The locality has special historic charms, for in the late war the two opposing armies met time and again at one point or other within sight of Mt. Quirauk. Further back than that, in the Revolutionary war savages and Hessians imported from across the sea, trod the same ground on which you now stand.

Monday morning you start down the mountain side to bustling Waynesboro. This town, as you heard before, is the industrial center of all the surrounding country. As an indication that this is not mere flattery, let me tell you that in the borough of 9,000 inhabitants there are about 900 telephone stations. The percentage of development will strike you at a glance as being rather exceptional in a community of this size. Further, since you are naturally interested in telephonic conditions, you may be fortunate enough to run across this Company's manager, Mr. Jacobs, who has charge of the exchanges at Blue Ridge Summit, Greencastle, Mercersburg and Waynesboro. In

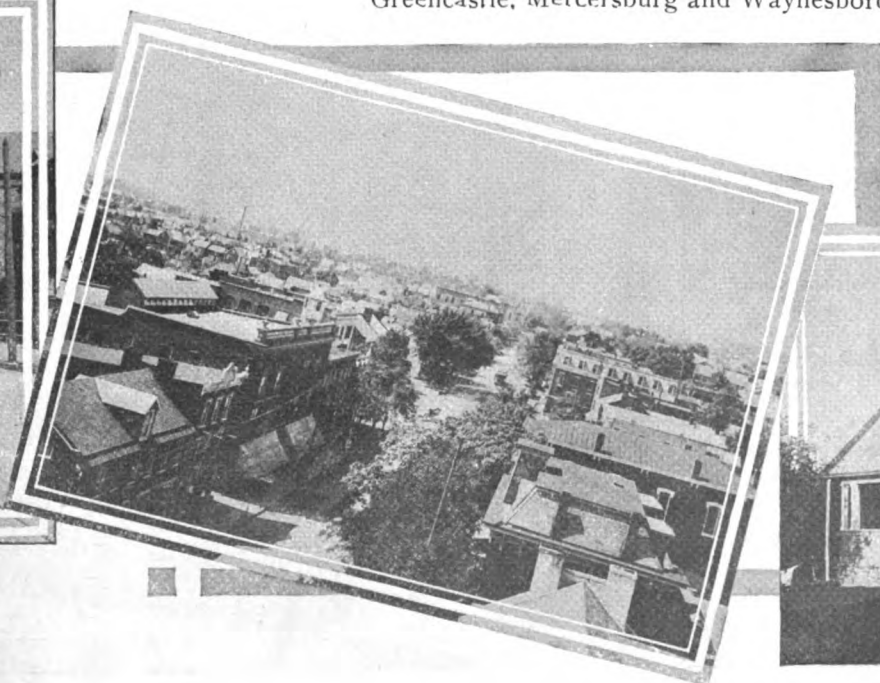
fact, it is difficult to speak of either the growth of the telephone industry in Waynesboro or the growth of the town itself without referring to Mr. Jacobs—"Alphabetical" Jacobs, as his intimates sometimes call him. (W. J. C. Jacobs is president of the Western Telephone Society of Pennsylvania and a member of the Telephone Pioneers of America. He has been active in Waynesboro affairs for a full half-century.) If you are especially lucky you may be taken in tow by him for a walk through the town, and assuredly you could have no better guide or source of information. You will hear, of course, of the three great industries of the place—The Geiser, Frick and Landis concerns. The first is chiefly famous for its gasoline engines. It is a million dollar concern and its products are known the world over. The Frick Company is a concern of about the same size and is especially noted for its refrigerating machinery, although it builds Corliss engines and several other kinds of machines. It has another distinction to its everlasting credit, too—it has a private branch exchange with 41 stations, each on a separate private branch line. The Landis Tool Company maintains a splendidly equipped plant for the manufacture of the well-known Landis grinding machines.

Waynesboro is thoroughly up-to-date in other respects. It has three remarkably successful banks, two of which are "national" institutions. Its traction company is a live concern. Its streets

(Continued on Page 10)



Blue Ridge Summit
Waynesboro





Tennis Courts, Monterey Country Club

The Blue Ridge Resorts

(Concluded)

are broad, well maintained and well lighted. Its water supply is of the best. And, still more encouraging, it has a virile Board of Trade.

Provisions for the younger generation have been especially commendable. At present there are three modern school buildings in use and a fourth, a splendid new high school building, will soon be completed. Altogether, you will find the Waynesboro spirit of the sort that believes in steady, consistent progress.

But, as you are supposed to be "a more or less humble telephone man" you are chiefly interested in the telephonic history of the place. You will be glad to learn details such as these:

The first telephone was installed in Waynesboro in 1884. Until 1888 there were scarcely a half dozen telephones in the whole community, and all of them were connected with the Hagerstown, Md., exchange by three ground circuits. In that year an old-fashioned 10-line switchboard was installed at Waynesboro. It sufficed until 1890 when the subscribers' list had jumped to the wonderful total of 25. But the exchange was growing in spite of this apparently slow development. The most remarkable stage of its development has come within, say, the last five years, when practically all opposition has been routed and this Company has placed close onto a thousand stations. When it is stated that opposition company is "routed" the word is used literally and not boastfully or figuratively.

The Company's rural development near Waynesboro is also worthy of special mention. About 150 rural stations are now connected and the total is rapidly growing. Mr. Jacobs may show you a wall map of his territory on which each rural station is marked with a red cross. Frankly, the array of red crosses is somewhat dazzling, and when you come to think that each one represents a telephoned farmer, the success of the Company's rural policy in this neighborhood is at once evident.

Thus your week-end comes to a close. You have enjoyed yourself, learned a number of things and missed a number of interesting points, no doubt, and you return to your work pleased mentally and refreshed physically. As you take your seat in the comfortable train and coast easily down the side of the mountain, two things are firmly settled in your mind. First, that the Blue Ridge region is an ideal pleasure and rest resort; and second, that Waynesboro is a thoroughly alive community both from the telephone man's point of view and from that of any other business man.

Successful Window Display at Wilmington, Del.

Although the idea of displaying a model telephone equipment for a department store was conceived by a telephone man, the window dresser of Lippincott & Company's store deserves much credit for the novel display shown in the accompanying reproduction; the arrangement of the equipment and the wording of the placards having been left entirely to his good judgment.

The display represents the Bell telephone system in use in the Lippincott & Company's department store, one of Wilmington's most modern and progressive houses. On each of the 40 instruments was fastened a card indicating the department the instrument represented; one large placard set forth many of the advantages of shopping by Bell telephone, while a second placard told how to shop by Bell telephone.

The wax figure of an operator at a standard No. 1 board was so lifelike as to cause much speculation on the part of the crowd which gathered daily during the week of the exhibit.

The local press devoted much space commenting upon the thrift of both this Company and Lippincott & Company. An excerpt from one account follows:

"A novel and interesting telephone display has been arranged in the show windows of Lippincott & Company. Two of the windows to the south of the Market Street entrance have been fixed up in a manner that is sure to catch the eye of the casual passerby. The window has been arranged to represent a typical telephone exchange, nothing having been omitted from the desk telephones, arranged in all conceivable positions, to the operator seated at the exchange. A genuine, bona fide exchange desk has been obtained and the signal buttons are fixed so that they flash constantly, representing the rush of business that is being done all the time at the large store.

"The telephones, 40 in number, are arranged with the aid of mirrors so that there appear to be two or three times the number that there really are. Each telephone is labeled with the name of some one of the departments of the large store, this being done to denote the convenience that is provided the shopping public in calling up the store and having their orders

Economy and the Pennsylvania Railroad

Indicative of the efforts of the Pennsylvania Railroad to economize in every possible way, is a general notice which has just been issued to the employees of its Schuylkill Division. Employees are told what it would mean to the Company on the Schuylkill Division alone if each one would save 10c. a day. Enginemen are requested to be careful in the use of oil, firemen in the use of coal and clerks are asked to economize in the use of stationery and by avoiding errors. Various other details are gone into in this rather unique notice, which is as follows:

"To Employees of Schuylkill Division"

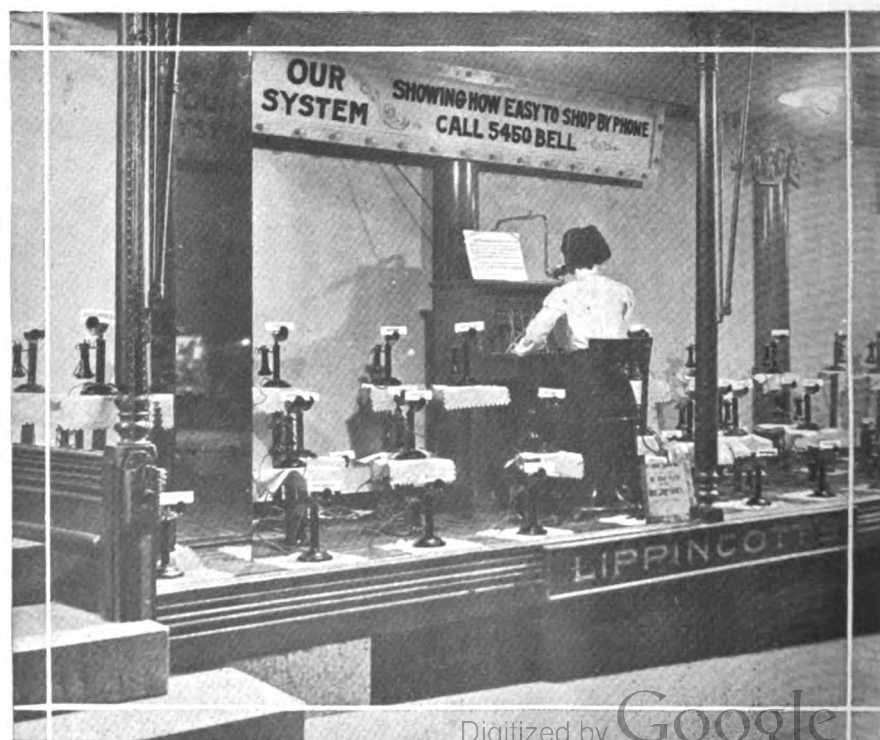
The necessity for a reduction of expenses at this time is very urgent. In addition to the exercise of the strictest economy in the use of material by all employees, the working time should be watched very carefully by trainmen and enginemen in order to avoid overtime wherever possible. In fact, every employee can assist in some way in accomplishing the desired reduction in expenses. As a practical illustration: If every one of the 1400 employees on this Division would save ten cents a day for the Company it would mean a total saving of \$140.00 a day, or in the month of April, of \$4200.00, which would go toward paying the increased rates of wages which we are now enjoying. How easy it would be for each employee to do this in his own line of work—enginemen in the use of oil; firemen in the use of coal; clerks by economy in the use of stationery and by avoiding errors; trackmen in gathering up old bolts and spikes; shopmen by doing their work properly and thus avoiding breakdowns on the road; warehousemen by loading freight so as to avoid damage; and all employees in many ways which will occur to them in the intelligent performance of their respective duties. Remember the old adage: 'What is everybody's business is nobody's business;' and let each employee make it his personal business to join in this laudable effort."

filled without having to leave the cool shelter of their homes.

"The display does credit to the advertising manager of the store as well as to the ingenuity of the window trimmer that had charge of the decoration of the window, and the Delaware and Atlantic Telephone Company."

The
Unusually
Successful
Window
Display
at
Wilmington,
Del.

(See accompanying
article)



Washington Division**R. G. HUNT, Division Correspondent**

An application has been obtained from J. S. Swormstedt for a change from one flat rate business station to a private branch exchange consisting of two trunks and five stations.

A contract for a private branch exchange was recently closed, largely through the cooperation of the Traffic Department. One of our subscribers had a one-party line and auxiliary station, both of which were located in the same room, one at either end. If a call were made to the listed number for a salesman who was at the time near the other station, the calling party would be referred to the other number. This wasted the calling party's time and also involved another message charge. The condition of affairs was reported by the Traffic Department to Contract, a salesman called and the application for private branch exchange service was obtained.

The United States Jail has superseded two one-party flat rates with a private branch exchange system of eight stations.

The following letter was received from a satisfied subscriber:

In answer to your favor of the 16th instant, I enclose 35 cents due upon my bill, with many apologies for my mistake. I did not know of Tuxedo as a Baltimore suburban station, but knew only of the Tuxedo in New York, with which I had no communication, which threw me completely off the track.

I would add to my apology my congratulations upon your system which enables you to trace an individual message in the way indicated by your letter.

Baltimore Division**J. R. MOFFETT, Division Correspondent**

For the month of August the Baltimore Commercial Department reports 1061 new stations, including 13 new private branch exchanges.

A contract for a private branch exchange superseding an obsolete direct flat rate, was closed with The Sondheim-Frank Company, by J. J. Walsh, Downtown Supervisor

Cumberland District. On the night of August 21 the Cumberland, Md., office issued 380 line orders, which meant the writing of that number of cards, "memo.," contracts, etc. This case of "going some" was caused by the recent operating changes in this vicinity. DODGE.

Frederick District. One of the U. S. Army aeroplanes from Washington, D. C., flew to Frederick, Md., August 21. The whereabouts and time of arrival of the aeroplane was telephoned over Bell lines. Several thousand people crowded the streets to get the various reports.

One of the Frederick newspapers has commended very highly the Chesapeake & Potomac Company on its quick work in digging up the streets, laying conduits and putting streets back in first-class order. The laying of conduits in Frederick is almost completed.

The Chesapeake & Potomac Company has arranged to replace 100 feet, 25 pair okonite cable at Inwood, W. Va., with 100 pair lead cable and to rebuild its lines in and around the town. PLANKINTON.

Loans By Long Distance.

Ernest Schayer, a young New Yorker, has a hospitable heart, and a handsome apartment fitted up with all the modern conveniences, among which is a telephone at the side of his bed, says *Popular Magazine*. His last guest was a young fellow who "just dropped in for a few days," and who stayed much longer. Schayer, who had begun to wonder when the visit should end, returned to the apartment early one afternoon and heard his guest, who was still lying in bed, make the following remarks:

"Central, get me Chicago, number so-and-so. Hello, Sam! This is Jack. Say, Sam, can you send me twenty by special delivery? I'm stuck in New York without a cent. Haven't got it? That's too bad. Good-by. Hello, Central: get me Indianapolis, number so-and-so. Hello, George. Say, can you send me thirty? I'm marooned in New York. Can't spare it? Sorry. Good-by. Hello, Central: get me St Louis, number so-and—"

At that point, Schayer rushed into the bedroom and grabbed the telephone.

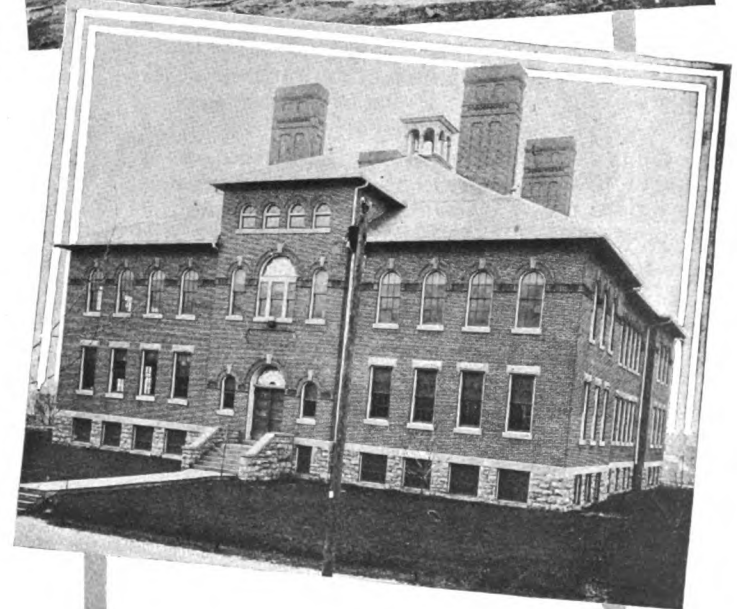
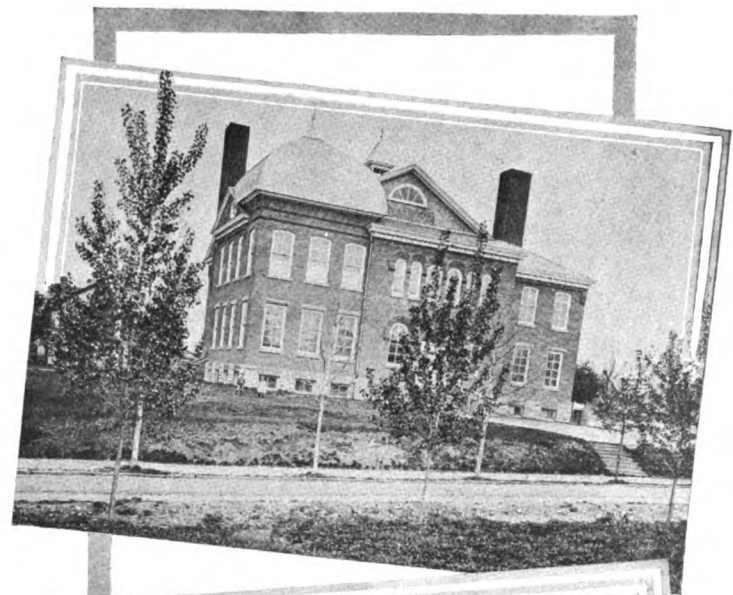
"After you've talked enough long distance to cost me forty dollars, I'll lend you the twenty!" shouted the host, in great agitation.

"Fine!" exclaimed the guest. "I knew you would, but I was ashamed to ask you for it. That's the reason I was calling up those other fellows."

The Value of the Motor-Cycle In Small Exchange Districts

The value of the motor-cycle in decreasing the cost of maintenance at small exchange districts where a combination man is stationed, and who has under his care long country lines radiating in nearly every direction, cannot be computed alone from the saving in car fare and team hire although the latter is generally high, but should cover as well the amount of time saved in reaching outlying points and in leaving them as soon as the work is finished. This makes it possible to clear many cases of trouble in the same length of time which would otherwise be spent in waiting for trains and caring for horses, and so forth.

In being prompt in clearing cases of trouble a favorable impression is made on patrons. In more than one instance subscribers have expressed their appreciation of such promptness in clearing their lines especially in cases of subscribers at a distance from the exchange—for the rural subscriber of to-day depends greatly on Bell service.



Three of Waynesboro's Modern School Buildings. A Handsome New High School Building will Soon be Placed in Service

Recently a rider left his main exchange, cleared trouble 11 miles away; then covered nearly the entire area of the three exchanges in the district, cleared three other cases—covering a total distance of 95 miles.

Comprehensive Supervision

(Continued from page 6)

returning to the office averages two minutes and seventeen seconds per station. About one-half of this time was taken up in separating the coins of different denominations, nickels, dimes and quarters. This had already been done when counting the coin at each station, and if the collectors' bags were divided into three compartments so that the coins of different denominations could be kept separate, considerable time could be saved in the counting of coin after returning to the office.

It was observed that the filing of toll tickets consumed twenty hours and fifty-eight minutes each month. The present method is to use a separate guide card for each subscriber's tickets. Toll tickets come from the Revenue Accounting centers arranged numerically by call numbers. The tickets for each subscriber are then separated and filed in a separate compartment. Although several hundred guide cards are used to file a month's tickets, none of the guide cards are numbered. It was suggested that the saving of 50 per cent. might be effected by the use of numbered guide cards for every hundred numbers, and that the tickets be filed just as they are received from the Accounting center. The work of arranging the tickets in the files and placing the guide cards should not require more than an hour for the month's tickets, and it is thought that a file in this shape would be more convenient to refer to than the present file. That this and similar savings of time could be utilized against other work under rush conditions is most obvious.

Observations on the work of writing line orders and contract cards indicate that excellent efficiency is being secured. It is thought, however, that an item of time is being lost by the line order clerk securing much information required for the writing of such orders which should have appeared on the original contract memoranda. It did not appear that this was due to any lack of coöperation between the salesmen and the office force, but rather to some slight carelessness in observing the needs of the line order clerk, the routine having been observed, but too little thought having been given to the fundamental requirements of the clerk.

In a like manner were investigated the methods of supervising contracts—service and directory advertising—and the methods of the sales-force engaged in these two classes of canvassing work. In the district studied it was found that one salesman's entire time was devoted to canvassing for directory advertising, and that in the last issue of the local directory about 60 contracts for advertising space were secured, many of these being renewals. It would seem, in view of the more or less limited number of immediate prospects for directory advertising in this district, and moreover as the canvassing was costing approximately 65 per cent.,

that equally satisfactory results might have been secured if only part of one salesman's time, perhaps one-half, had been devoted to this branch of the saleswork.

Considerable study was given to the handling of incoming telephone calls in the District Office, and the method of securing attention to the inquiries and requests received from this source. Form 1697 was used to report requests for service, removals, etc., to salesmen. When a request for a new contract, supersedure, change of location or inside move, or the termination of service was received from a subscriber, form 1697 was prepared in triplicate. One copy was referred to the salesman, one copy retained by the Local manager for follow-up purposes and one copy retained by the Supervisor of Salesmen. As it was the practice to have the salesman interview subscribers in answer to requests, it was, of course, necessary to prepare this form in every case. If the interview were dispensed with in cases where there seemed to be no particular reason for it, considerable time was saved in this item.

For example, if under the above practice a subscriber called the Local Manager's office by telephone and asked for an inside move or an extension station, the employee receiving the call would refer to the contract record and prepare form 1697 in triplicate, showing the subscriber's name, address, telephone number, class of service, rate, signature of contract, date of expiration, date of last free move, and a memorandum of the request. The salesman would interview the subscriber and report to the Supervisor of Salesmen that he had received the necessary signature to form 690 (Request for Move) or form 1297 (Supplemental Contract). The Supervisor of Salesmen would recommend that the change be made and the Local Manager would have the line order issued. It would seem to be sufficient in such a case for the employee receiving the call to advise the subscriber on what terms the change would be made, and if the subscriber agreed verbally to the terms, have the line order issued at once, and mail form 690 or 1297 to the subscriber for signature. This would not only save employees' time but would expedite the line order work. If the subscriber were of doubtful credit it might be advisable not to issue the line order until the subscriber returned the form.

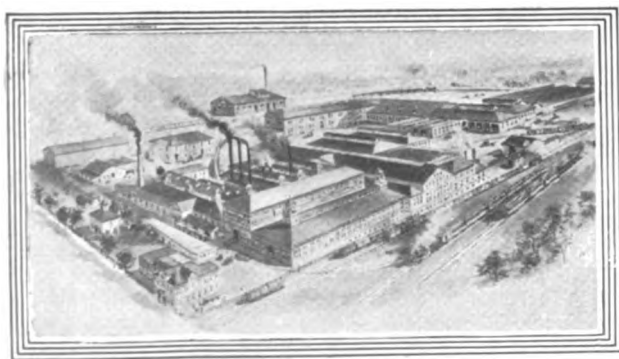
A study of the routine and special reports prepared in this office during the month brought to light no unusual conditions, except, perhaps, in the use of the Sign and Booth report. It was observed that the automatic collectors, on finding public telephone equipment in bad condition, would at once submit a report thereon. Frequently on returning to this public station for subsequent collections it would be noted that the conditions had not been corrected—and the collector would then make up a duplicate of his previous report.

Frequently no action would be taken on these reports for several months—which entailed much unnecessary work on the part of the collector—work which he apparently made no effort to obviate. It would seem that a better plan would be to discontinue the monthly report, make the collectors primarily responsible for the conditions at public telephones and require them to make special reports of any bad conditions and follow up such reports personally. This plan would appear to cost less than the present method, and is accordingly thought to be worthy of the consideration of those who are supervising this branch of the work.

In a similar manner we have investigated the practice of typewriting correspondence and reports, filing correspondence, office boy work, messenger service, etc. In practically every detail it was found that the specialization was carried to an unusual degree, and in more than one instance it was noted that a more minute supervision would have brought to light imperfections in the present practice. Although the Local Manager appeared to be very closely in touch with each employee's work, very little if any time was spent in planning the work of the office before assigning definite tasks to employees. As the office was then organized each employee confined himself to one or more regular lines of routine work and performed this work almost independently of the rest of the force, except where one class of work was divided between two employees. Only three cases were noted where an employee left his regular work to assist other employees who were overloaded, and in these cases it was done by arrangement between the employees. This resulted in a very unequal distribution of certain classes of work during the month, with considerable overtime during busy periods and loss of efficiency due to employees not being fully occupied during the less busy periods. This specialization of effort resulted in at least two of the employees devoting their entire time to work which apparently should have required only part of one employee's time. It is thought, therefore, that no small amount of consideration should be given by the Local Manager to the maintaining that shall indicate the quantity of routine work handled by each employee at the several periods of the month and the number of employee hours required to perform such work. By means of these he might provide help when needed and assign definite additional work, preferably in definite quantities, when the regular work is slack.

The present plan of specializing has the advantage of enabling the Local Manager to definitely fix the responsibility for each class of work. But it is thought that the plan here suggested can be carried out without losing this advantage and with a considerable in-

(Continued on page 13)



Three Waynesboro Industries
Left to right: Frick, Geiser and Landis
Tool Co.'s Plants





Three Views of Maryland State's Model Sanitariums, near Blue Ridge Summit

Comprehensive Supervision

(Concluded)

crease in efficiency. Perhaps a simple solution of this problem in the average office would be to employ a sort of utility man who should be equipped to handle almost any class of work either inside or outside the office and who would be regarded as an understudy to the Local Manager. The word "perhaps" is used advisedly, inasmuch as it is probable that the increased expense of an additional employee might in many cases permit of a sufficient saving in other details to warrant the increase. It is not felt that we can comfortably cast aside the idea of specializing which has worked such splendid results during the past few years—but it is thought that specialization alone is not the answer. Specialized work, to be most effective, must be supervised to the most minute detail, and, as has been before said, we can ill afford to rest satisfied and secure in the thought that our present plan of specialization is bound to accomplish maximum results unless our supervision shall comprehend a high degree of study and planning.

It is difficult to draw any general conclusions from a District Office study of this sort, inasmuch as the findings are in many cases peculiar to the office under observation. It is not thought that a majority of our employees concerned with this subject will acquire anything more than a thought or suggestion from the review of this study. But it is quite positively "up to" the men who are actually supervising the several items of business office work and whom the company holds responsible for the greatest efficiency as regards cost in this work to give much thoughtful consideration to the subject. Similar studies, on a perhaps smaller scale, should eventually be undertaken in every office unit, for the purpose of determining whether the work as a whole and as component units is being done in the quickest and most economical way. It is thought that such studies cannot fail to be of immense advantage to the Company, to the supervising heads who may conduct them, and to the employees whose efficiency and worth to the Company is measured by the amount as well as the grade of work performed.

An Idea from "Down East"

A New England telephone salesman, who is a *salesman*, formed a "clearing house" for tips with a sign painter, a newspaper advertising man and an electric light man. A grocery clerk also contributed names from which new business was obtained. At frequent intervals each man added those names and addresses that he had learned, and the others in the "clearing house" initialed the list to show that he had noted them. The plan was most satisfactory for all concerned.

Telephone Societies

The Philadelphia Telephone Society

Bills covering dues for the season 1911-1912 have been mailed, and it is earnestly requested that the coin cards be returned with dues to the Secretary-Treasurer as promptly as possible, so that membership cards may be mailed in sufficient time for the October meeting. Members should use the coin cards in payment of dues to avoid confusion at the meetings.

Please bear in mind that the membership cards must be presented at the door.

Supervisors should confer with men who are non-members, and point out the advantages of membership in this Society. The papers read are of a general character, every department is represented. The discussions following the papers are exceptionally profitable, for it is the aim of the Society that they shall *educate*. It is this educational feature that is helpful to men in all branches of the work.

The House Committee is arranging for a series of papers which will be welcomed by every member of the Society. October 3 is the date set for the first meeting of the 1911-12 season. Further announcement will be made as to the speaker.

(Sd.) J. R. Y. SAVAGE,
Sec.-Treas.

Transposition Club

Hotel Henry, Pittsburgh, Pa.
September 26

Speaker: R. A. L. Snyder, Plant Engineer.

West Philadelphia Telephone Society

Annual meeting will be held Tuesday evening, September 19, at 5160 Lancaster Avenue.

Important matters will be taken up at this meeting and every member is urged to be present.

The Spare Pair Society

Fraternity Hall, 1414 Arch St., Philadelphia
September 20, 8 P. M.

Speaker: Geo. H. Chase.

Western Penna. Telephone Society

Board of Trade Hall, Harrisburg, Pa.
September 21.

Speaker: H. F. Hope, Electrical Engineer.

Subject: Modern Telephone Construction Methods.

Business meeting, 7.30; address, 8.15; banquet, 9.30 P. M.

Mr. E. F. PATTERSON,
Local Manager The C. D. & P. Tel. Co.,
Pittsburg, Pa.

DEAR SIR:

The C. D. & P. Telegraph Company was organized by me in 1874 for the purpose of putting all the larger concerns in Pittsburg in communication with each other by means of printing instruments and a central office. I began the business with one boy, John Connors, now an operator in Pittsburg office. Early in June, 1877, Mr. Gardner G. Hubbard, who was in full control of the Bell Telephone, came to Pittsburg to see me. When he explained the object of his visit I said, "Oh, it is only a toy and I am too busy to give the matter any attention." He replied, "Don't say that; come to my room." There he produced some magneto telephones. I was not slow to see a merit in the invention. Its possible, useful feature absorbed my whole attention, and I conducted many experiments under all sorts of conditions.

The first experiments in Pittsburg were made between my house, No. 232 Shady Avenue, and a building on the rear of the lot, and soon after I had a wire strung from my office in the First National Bank Building to the Iron Exchange on Fourth Avenue for public exhibition. I also had a wire from one end to the other of the Exposition Building in Allegheny, for the same purpose. It has recently been told that Graham Bell sought out a man to do this experimenting at the exposition to whom he offered a large interest. Professor Bell had nothing to do with the introduction of the telephone to Pittsburg, and Mr. Hubbard had control of the business end of Bell's invention.

On one occasion, in July, 1877, I made a *long distance* (!) test between Somerset and Mt. Pleasant (some 20 odd miles) by metallic circuit. Mr. David Fleming and Mr. Samuel L. Gilson went to Mt. Pleasant, and a Mr. Miers and myself to Somerset. As we were using the wires of the Western Union Telegraph Co. the experimenting had to be done in the early hours of the morning. Magneto telephones have but little power, and not much was accomplished. We did talk, but not satisfactorily. The immediate result, however, was that Fleming and Gilson were in danger of being arrested as escaped lunatics, for it could not be understood why two sane men, in separate rooms, would be howling, Hello! at four o'clock in the morning.

Yours truly,

Thas David



Carpenter shop in yard of T. B. A. David, first President of the C. D. & P. Telegraph Co. From this shop the first telephone line Digitized by Pittsburgh was strung

Pittsburgh Division**L. W. GRISWOLD, Division Correspondent**

The following request, signed by an officer of the United States Navy, stationed near Pittsburgh, speaks volumes for the favor in which the A. T. and T. Company's maps are held:

Would you be kind enough to let me have one of your large office maps of the United States? This office is in need of a large map of the United States, and of all I have seen, none would answer the purpose as well as your large map.

A news dispatch from Canonsburg, Pa., the town in which a number of lives recently were

lost in a moving picture show panic, to the *Pittsburgh Dispatch*, has the following to say of the manner in which one of this Company's chief operators saved three lives—including her own—by her calmness during the excitement:

"Coolness saved the lives of Miss Lorena Bonnell, a telephone operator in the local exchange, and two little children of a friend she had taken with her to the Morgan Opera House last night. Miss Bonnell was seated well down in front, and says she heard no cry of fire, although after the bright light had flashed on the screen she saw the people all about get up and make a rush for the doors. One of the children with her screamed and wanted to join the rush, but Miss Bonnell told her she would be safest if she sat still. She saw to it that her two little charges did sit still and had the happiness of restoring them to their mother unhurt, where so many other parents were sorrowing."

Butler District. Recently a large tree was blown through the Butler-Oil City toll line, taking with it 54 wires and all toll connections between Butler and points north. The Plant Chief and five men left Butler at 8 P. M., located the break, had all the lines working by 6 o'clock the following morning. The moon was a great help in making the repairs, as it shone nearly all night.

The District and Local offices of the Commercial Department in Butler have been moved into new quarters in the Reiber Building, adjoining the rooms formerly occupied.

During the Butler Fair, on August 22, 23, 24 and 25, 5000 Blue Bell fans were distributed and two automatic pay stations were installed.

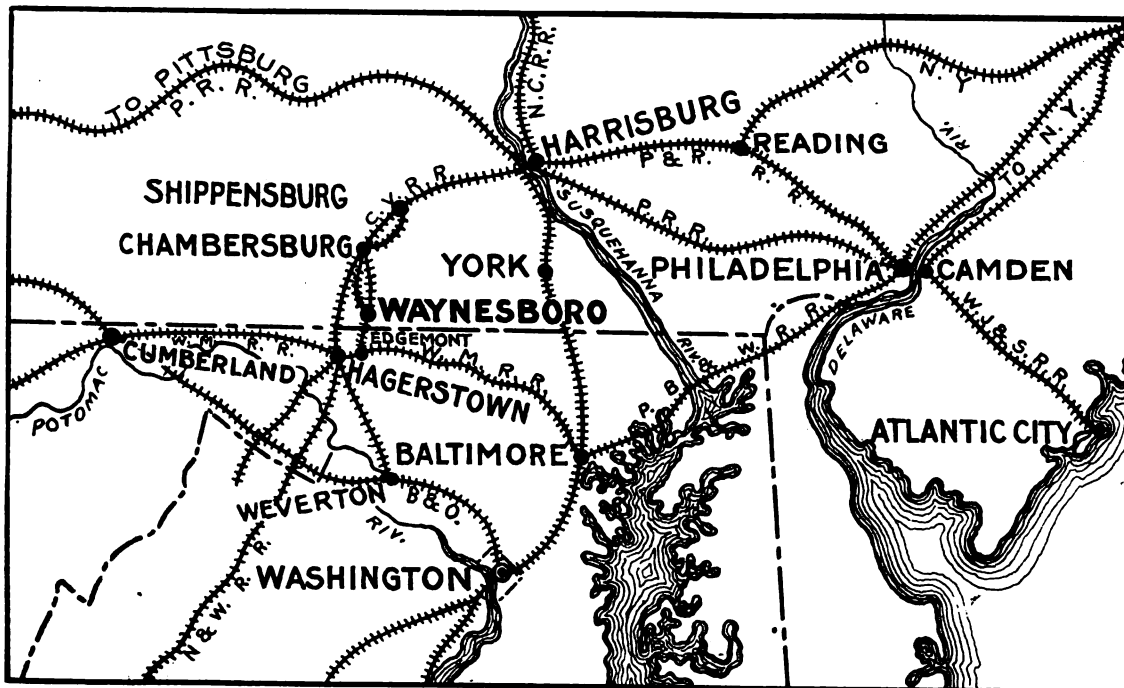
The C. E. Metzger Company, Ltd., of Warren, Pa., a retail department store in the northwestern section of the State, has acquired a reputation for being the telephone shoppers' store. This has resulted from the installation of a private branch exchange and the use of Bell coupon books. During the first week of July a four-page folder, announcing a special sale was sent out by this concern to 10,000 residents of Warren and vicinity. The circular contained a complete description of the new tele-

Atlantic Coast Division**J. R. ANDERSON, Division Correspondent**

Camden District. A new 80-line No. 1462-type magneto switchboard has been cut over in the Paulsboro Central Office. The old board was unable to take care of the present and future demands.

Within the past two weeks, a two position private branch exchange has been completed for the Victor Talking Machine Company of Camden, N. J., serving 160 lines, with 25 cord circuits and 10 trunks. The capacity of this switchboard will serve 420 lines, 30 trunks and 30 cord circuits.

CROXTON.



Map Showing Waynesboro and Neighboring Cities

Trenton District. Convicts at the State prison, according to the *Philadelphia Record*, are installing a telephone system which, it is believed, will lessen possibility of escape. Much time formerly was lost in sounding an alarm when a convict succeeded in reaching the walls. The system will provide instant communication with the various towers.

That Uncle Sam occasionally needs assistance was noticed the other day when a postmaster in a town in the southern part of the State appealed to Salesman Warner, of this district, to help him out of a difficulty. He had a letter addressed to a certain person, but the address was deficient. It read—"Mr. _____, Trenton Office, Bell Tel. No. 984." It is said that there are 54 Trentons in the United States, and that on account of the "Bell Tel." being everywhere, Uncle Sam was up against it. However, the matter was put at rest in about two minutes by consulting the Trenton, N. J. directory, and the letter was sent on its way to that city.

phone system and invited the public to make unlimited use of it. Coupon books were distributed among prospective buyers residing in 26 different towns within 50 miles of Warren.

WARRICK.

The Sheffield Telephone Company, of Sheffield, Pa., employs a trouble hunter who uses a gasoline "speeder" on a narrow-gauge railroad and by means of this mode of transportation is able to quickly reach any part of the Sheffield Company's plant.

The exchange in the Frankford Building, 1640 Church Street, Frankford, is being remodelled; additional "A" and "B" positions are being added to the switchboard to take care of increasing traffic. The operators' retiring room has been moved to the third floor and a new stairway put in, so that employees will not be obliged to pass through the operating room, as was formerly the case.

The Maintenance Department defeated the Equipment Department in an exciting eleven inning game of base ball, the final score being 8 to 7. The batteries were, Maintenance, Kilmer,

p.; Harron, c. Equipment, J. Stuart, p.; McAndrews, c.

A Philadelphia prospect having an office where the conditions were such that it was difficult to furnish service, wrote the Company that he would rather move his office than be without a Bell connection.

The Philadelphia office of Whitman, the confectioner, calls attention to the advantages of ordering by telephone by an effective display of miniature telephones in his window.

The electrical sign in the window of the Central District Office, advertising Bell facilities as the most satisfactory mode of long distance communication, has attracted much favorable comment. A fuller description of it will appear later.

The new Central Information Bureau is doing away with long waits, the average time for giving information being 12 seconds. Subscribers are all cross-indexed by street address and alphabetical order, each clerk having jurisdiction over a certain portion of the alphabet. Each individual information bureau has direct connection with each separate clerk at the Central Bureau, and much time is saved in this manner.

Horatio Lloyd has negotiated through his architect, Wilson Ayer, for an estimate on a No. 2 private branch exchange with 18 stations, to be installed at his new estate at Haverford, Pa. This is one of the many private branch exchanges to be installed on the Main Line.

The following is one of the amusing puzzles which confronts the Commercial Department almost daily:

DEAR SIR: Af you pleas do not sent me sombodes aleses bills tu pay, bicous wi or sateside to pay or bill, from, etc., etc.

The collections in the Central District office have shown a marked increase for the month of August, the percentage being several points higher than the average.

A post card, addressed to "Miss _____, Telephone number Diamond 2485-D," was received without any appreciable delay by a local patron.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

On August 16 a stranger passed a call from the Easton, Pa., Central Office pay station. In paying for the call the cashier asked her if she was a resident of the town and had telephone service. The reply was, she recently moved to Easton from Buffalo, N. Y., where she had our service for the last 12 years but decided not to install a telephone at Easton on account of having few acquaintances. The cashier explained to her that we had over 3,000 telephones locally, and succeeded in securing an application for telephone service.

The following article appeared in the *Daily City Item*, Allentown:

"Jacob Thompson and Roy Egbert were arrested yesterday on a charge of trying to pass a forged check in Easton. They entered a clothing store without hats, each selected one and then offered a check for \$7.50 in payment. They said their hats had blown off as they crossed the Easton-Phillipsburg bridge

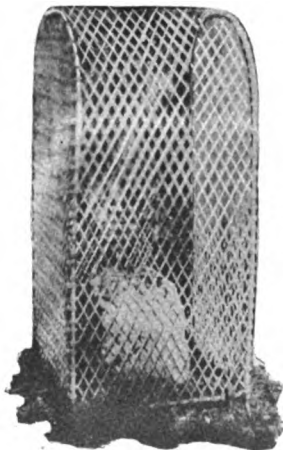
"The check contained the signature of a merchant whose place of business was located opposite the clothier's. He told the men to wait a moment and stepped across the street. As he left the store Thompson and Egbert ran down the street and crossed the bridge to Phillipsburg. One of the clerks had telephoned to the Phillipsburg police in the meantime and the two were arrested as they entered that town."

Recently the full-selective four-party residence service at Bethlehem was changed to semi-selective. Several days ago a subscriber came to the business office and insisted that his telephone be removed as he would not tolerate an additional ring and would not pay any more money for service. Before he left the office he signed an application for direct line service. To date not one of the 619 subscribers that were changed from full-selective to semi-selective service discontinued our service.

A salesman in the Easton district was canvassing a business man for residence service who had just moved to the town. The prospect informed the salesman that he was willing to take Bell service as soon as he could rent a suitable residence. The salesman immediately got in touch with several real estate dealers and finally

"Crown Stone"

**Along the
Mason and
Dixon's Line
Near
Monterey**



secured one that was suitable. The result was an order for direct line residence service.

A resident of the western part of Easton has been annoyed recently by thieves who have been stealing grapes from his yard. A few nights ago he arranged with the police to be at a certain place and, hearing someone prowling around his yard, he at once got in touch with the offi-

cers by telephone, and they captured four young men with the grapes in their possession.

Harrisburg District. One of the rural lines on the Greencastle exchange was very noisy last week, and after repeated efforts on the part of the rural agent our trouble man was called upon to clear the trouble. Each rural subscriber is expected to clean his carbon bricks, and when the trouble man entered a house he found the protector immaculately white, the brass cap shining like gold, and the lady all out of sorts because the trouble man said he came to clean the carbon bricks. She saw her mistake when the shiny cap was removed and she was shown the real carbon bricks burned together. She had spent many hours shining up the outside of the protector.

Scranton District. A subscriber to the opposition company's service in Carbondale recently placed a call for a party at Scranton at 9.15 A. M. At 9.30 A. M. the operator reported that the station at Scranton was busy. No further report was secured on the call until 5.30 P. M., when the operator advised that the telephone had been disconnected. The following day one of our linemen overheard the Carbondale person relate his experience to one of his friends. The lineman turned the name and address over to our salesman with the result that he obtained an application to cover direct line service.

Frequent base ball games have been played between the employees of the Scranton and Wilkes-Barre Districts. The game of Saturday, August 26, showed a score of 23 to 7 in favor of the Scranton employees.

Publicity Bulletin No. 5**September 9, 1911**

The following construction and replacement expenditure estimates have been approved:

- (1) The Bell Telephone Company of Pennsylvania has recently appropriated \$12,600 for aerial and underground cable work at Chambersburg, Pa.

One hundred and thirty miles of open wire construction in the congested sections of the city, largely adjacent to the central office, will be removed—and four miles of aerial cable will be erected.

It is anticipated by the local Commercial Department representatives that no less than 600 stations will be immediately added to the constantly increasing Bell System in this city.

- (2) The Bell Telephone Company of Pennsylvania has recently appropriated \$16,000 for an enlargement of its central office equipment at Lancaster, Pa. An unprecedented growth has been experienced in this city during 1911, the increase of subscribers' stations during the first five months of this year being greater than the total increase for 1910; this, together with the unusually large number of supersedures to a better class of service which are continually being made, has necessitated the addition of five local operators' position and one toll operators' position to the present switchboard equipment. Seven hundred additional subscribers' lines will be provided.

- (3) The Delaware & Atlantic Telegraph & Telephone Company has recently appropriated \$6,000 for the laying of underground plant and the erection of over two miles of aerial cable at Audubon, N. J. On the completion of this work the present congested conditions on the White Horse Pike and Merchant Street will be greatly relieved, and a still further improvement and safeguarding of the local service will result.

It is estimated that an immediate increase to the local subscribers' plant of 50 stations will follow this work.

- (4) The Diamond State Telephone Company has recently completed plans for the laying of a new 19-pair submarine cable under the Nanticoke river at Vienna, Md., to replace the present 5-pair cable which is becoming inadequate for the handling of the constantly increasing toll line traffic between Salisbury, Hillsboro and Cambridge,—between Salisbury and Queenstown,—and between Salisbury and Baltimore,—now routed through this cable.



On the Golf Course at the Monterey Country Club

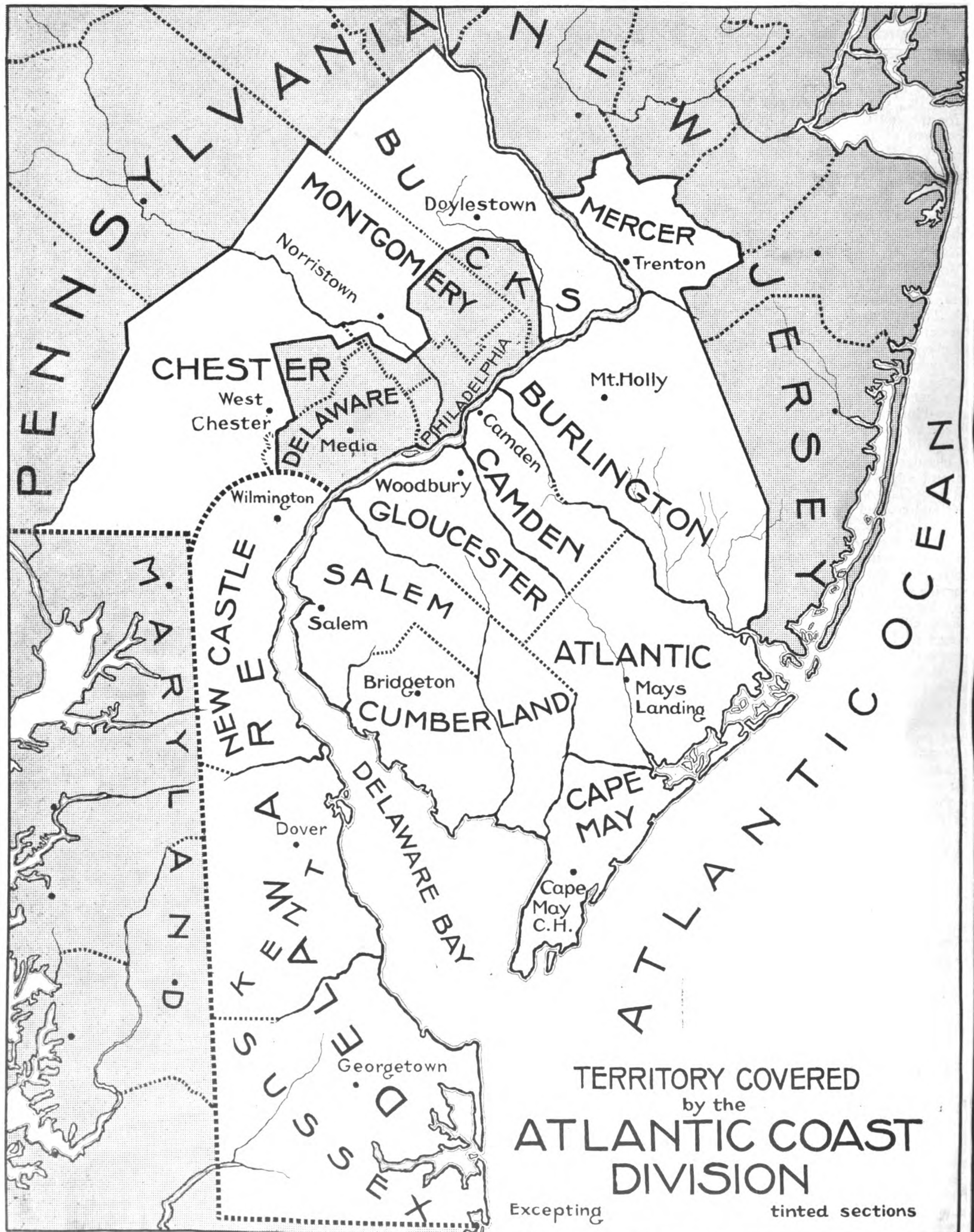
- (5) The Central District & Printing Telegraph Company has recently appropriated \$10,000 for the enlargement of its local service plant at Sistersville, W. Va.

It is estimated by the local Commercial Department representatives that nearly 200 stations will be added to the local exchange plant during the next three years.

- (6) The Central District & Printing Telegraph Company has recently appropriated \$10,000 for aerial cable construction and a general plant enlargement at Moundsville, W. Va. Upon the completion of this work a change in the central office and subscribers' equipment to the modern Common Battery System will be undertaken.

It is estimated by the local commercial Department representatives that an increase of over 200 subscribers' stations will be experienced during the next three years.

- (7) The Central District & Printing Telegraph Company has recently appropriated \$12,000 for underground conduit and cable work at Steubenville, Ohio. This work will be undertaken in connection with the erection and equipment of a new central office building at Steubenville for which \$55,000 was recently appropriated by the telephone company.



THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

OCTOBER 1, 1911

NO. 19

Motor Vehicles Prove Their Worth

PRACTICALLY every day officials of the Plant Department are receiving additional confirmation of the idea that motor-driven vehicles are superior to any and all old style methods for plant work.

At the present time the Company is maintaining the following motor trucks and automobiles:

- 5..1½-ton Mack trucks
- 4..1000-lb. Chase trucks
- 4..Mitchell runabouts
- 1....Cadillac runabout
- 1.....Ford runabout
- 1..Packard touring car
- 1....Stoddard-Dayton touring car

(One additional Ford runabout has been ordered.)

As yet it is impossible to print a comprehensive statement of the results accomplished by the use of these cars. The majority of them have been in use less than three months. At a near date it is hoped, however, that a tabulated account of their performances will appear in THE TELEPHONE NEWS.

An incident illustrative of the really remarkable manner in which motor trucks, especially, prove their value in emergencies is contained in the following:

The Atlantic District received a new 30-h.p. Mack motor truck on July 7, to be used by the Plant Department. Its value for emergency work was demonstrated on the night of July 26. About 8.30 P. M. a report was received at Atlantic City that during a heavy wind and thunder storm a willow tree, fifty feet in height and three feet in diameter at the base, had been blown over and fell on pole No. 2146, of the No. 2 Philadelphia-Ocean City trunk line, at Tuckahoe, N. J., breaking the pole off at the butt, splitting five cross arms and tearing down 44 wires for two spans.

On this line we have 14 trunks, two subscribers' lines and six stations, all of which were put out of service. It was very important that service be restored as soon as possible, as this season is the busy time of year at the South

(Continued on page 9)

The Advantages of Training in Salesmanship as Applied to the Telephone Business

A Paper Read Before the Transposition Club, Pittsburgh, Pa.,
By E. C. BATES, Contract Manager, Pittsburgh

FOR the purpose of intelligently discussing this question, and in order that its different aspects may be clearly viewed, I have divided it into five sub-heads, as follows:

1. The Superiority of the Trained Man in General.

2. The New Man in the Telephone Business.

3. How the Telephone Salesman is Trained.

4. Application of Training.

5. Results of Training.

Now, we have, first, THE SUPERIORITY OF THE TRAINED MAN IN GENERAL.

The highly trained man in any field of endeavor possesses an immense advantage. The very word "training" means a course of preparation for the attainment of some definite object, and he who is best equipped must in the long run show the highest percentage of success. Long and trying study, properly directed (whether it be from books or men), is the price of sustained

achievement. The individual must, of course, also have the ability to *assimilate* the instruction and to make a practical application of its principles.

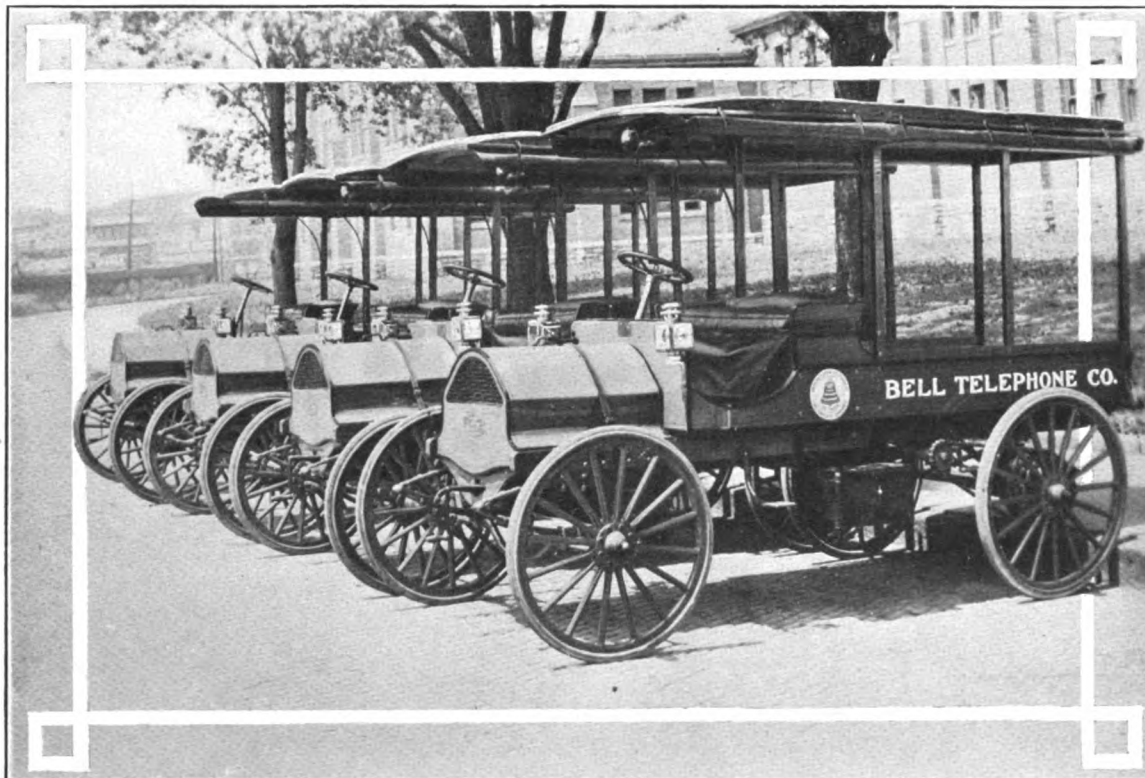
From the prize fighter—who spends months in attaining the quickness of eye and hand, the elasticity of muscle, and the endurance that shall enable him to conquer his personal foe—to the surgeon—who spends years in attaining the special knowledge that shall enable him to conquer the universal foe—is a far cry; yet each is a specialist in his line—each is a *highly trained man*.

The present day is the era of the specialist, and nowhere has this fact received readier recognition than in the commercial field.

In these days of strenuous competition in business, coupled with the natural desire of every commercial enterprise to obtain not only as much business as possible, but the *best class* of business, expert salesmanship has become a factor whose importance can hardly be overesti-

(Continued on page 3)

A Group of Four Motor Trucks Recently Purchased by this Company



Telephone Societies

The Baltimore Telephone Society

Arundel Club, N. W. cor. Charles and Eager Sts.
October 4—*Speaker*: J. S. Francis, Engineer.

The Cross Talk Club

Kugler's Restaurant, Philadelphia.
October 10—*Speaker*: A. DeB. Robbins.

The Philadelphia Telephone Society

1420 Chestnut St.—October 3.
Speaker: B. Stryker, Plant Superintendent.
Subject: Some Thoughts on Special and General Supervision.

Chief Operators of Philadelphia Division

On Wednesday and Thursday, October 11 and 12, the monthly meetings will be resumed at 254 S. 4th St.

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Delaware & Atlantic Telegraph & Telephone Co.
The Central District & Printing Telegraph Company



The Chesapeake & Potomac Telephone Company
The Diamond State Telephone Company

U. N. BETHELL, President
F. L. SPALDING, Second Vice-President and General Manager
W. S. FIERSON, Secretary
WALTER BROWN, General Auditor
L. H. KINARD, Commercial Manager
J. C. ROWELL, Plant Manager

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to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
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payable in advance

Vol. VII OCTOBER 1, 1911 No. 19

More About Hidden Telephones

In the April 1, 1911, issue of THE TELEPHONE NEWS there appeared an article entitled "Hidden Telephones," on the subject of omitted directory listings. Salesmen, generally, who obtain applications for service should not fail to impress the desirability and importance of having the names of all subscribers appear in the directory. By so doing the subscribers who wish to call such stations will not only be aided but the Company's revenue will be increased.

However, the point which we wish to impress here is the positive need for signs wherever there are public telephones.

Sometime ago a telephone representative noticed a drug store in a prominent residential section of one of our larger cities and was surprised that no Bell telephone sign was visible. He decided to investigate before going further in his search for a public station. Upon entering he saw two booths and an additional station. Later, in talking with the druggist, he learned that a painter had removed the large flange signs and that the only one left was a small faded bell-shaped sign of an obsolete type. It was located on a door panel and hidden by the screen door. The revenue was about half what it should have been, due, perhaps, to the fact that many residents in that vicinity, who seldom went to the drug store, were unfamiliar with the fact that public stations were installed there. Prompt action was taken to remedy the condition.

In another locality the druggist asked why his telephone receipts should be so small when another druggist in the vicinity was evidently handling twice as much telephone business. He was shown that the lack of well-displayed signs was the cause, and arrangements were at once made to have his signs rehung so that

they would not be concealed by awnings and other more or less permanent fixtures. Subsequent investigation showed that the revenue at both locations had materially increased after the new signs had been in place for a sufficient length of time to make a satisfactory comparison.

On another very prominent thoroughfare after an inspection was made thirty or more signs of a special type were placed, increasing the revenue at practically every station.

Sometime ago a series of photographs appeared in THE TELEPHONE NEWS calling attention to signs that were badly placed or neglected and the station receipts were correspondingly low. This fact was proved by a substantial increase in revenue after new signs had been in place a short time.

Many conversations at public telephones are a result of momentary inclinations. When a prospective user is contemplating the use of the service he immediately looks for a sign and if it so happens that he is required to walk several squares he is likely to decide differently and to postpone the message or put it off entirely. Signs are, therefore, important traffic-getters for these public stations. As we are working for traffic it is to our interest to see that signs are kept in place and in attractive condition.

The end to accomplish, then, is that every employee shall constitute himself or herself a *searcher* after hidden telephones. All too frequently we "just happen" onto a public station crazily stowed away in a dark corner or behind a stack of ledgers. Those are the ones we want to give publicity. Let it not be said, with apologies to the poet,—

Full many a 'phone of purest worth serene
The dark, unfathom'd depths of drug stores
bear.

Full many a station's born to serve unseen,
And waste its value on the od'rous air.

Presence of Mind

Not long ago the Philadelphia *North American* printed a three-column story about the telephone operator. If you happened to read that story you saw this sentence: "It is she who must properly straighten out any difficulty or unintentional form of annoyance that may be given."

It meant, of course, that the operator by constant practice so disciplines herself that the thinking of the right thing at the right time and in the right place borders on the instinctive. Once acquired, this habit far removes the disciplined one from those who think of the wrong thing at the wrong time and in the wrong place. It is a case of brain against chance—and brain wins.

The telephone operator has presence of mind to an unusual degree. You know it. We all know it. Should the time come when you are called upon to impress this fact strongly, just recall the following incident:

On the evening of August 26th several hundred men, women and children were gathered in a little "opera house" at Canonsburg, Pennsylvania. There was a picture film being unreeled and the story on the screen caused laughter to burst from every man, woman and child in the audience. At just nine o'clock a white flash stopped the laughter. During the hush a thoughtless one cried "Fire!"

When the doors of the place were closed to shut out the curious twenty-six lives had been trampled away, thirteen of them children.

The thoughtless one had done the wrong thing, at the wrong time and in the wrong place.

In that Canonsburg audience, not far from the stage, sat Miss Laurrenna Bonnell, this Company's Chief Operator at the Canonsburg Central Office. Here is her story:

"I went to the opera house with two children. We were not seated together more than a few minutes when the white flash came. The screams were horrible. One of the children cried and the woman next to me told me to hurry out. I told her to stay in her seat but she rushed away. The children and I stayed in our seats. I told them the flash was just a part of the picture. When the screaming stopped I walked back towards the doors, took seats and tried to quiet the children. Then the father of the little girls who were with me came in and took us out of the building. When I reached the sidewalk I thought of their mother. I called her on the telephone and told her the children were safe. Then I hurried to the office because I knew how busy the operators would be."

This was the right thing, at the right time, and in the right place. Heroes and heroines have presence of mind.

Politeness

(From an Editorial in the *Pittsburg Gazette-Times*.)

Time taken for politeness is never wasted, a fact which rushing Americans are apt to overlook. Across the water one is almost stunned at first when the omnibus or street car conductor says "Thank you" for every fare. Courtesy in such surroundings seems superfluous, but it is not. It has an effect on the passengers and all concerned, which tends toward better service.

Telephone Salesmanship Training

(Continued from page 1)

mated. This is so generally recognized that the statement needs no discussion or analysis to support it.

This being granted, let us pass on to the desirability of training telephone salesmen, how it is done, and what results from it. This brings us to our second sub-head, THE NEW MAN IN THE TELEPHONE BUSINESS.

It would be difficult to name a business in which the average applicant for employment has less knowledge at the start than ours. There is, of course, hardly any one who does not know in a general way what a telephone is and what it accomplishes. It is a product of comparatively so recent a period of scientific research, and it still has so many possibilities of ultimate development, that even our trained telephone engineers are constantly discovering new phases of its commercial utility. It is not to be wondered at that to the new salesman the simplest details of telephone construction and operation are usually unknown quantities. But he must be given this knowledge. He must know the goods he sells; for that is one of the two requisites of the successful salesman, the other being, of course, the ability to sell them.

It goes without saying that the new man must be willing to work and work hard; he must be intelligent, and his personal appearance and manner also are matters of no small importance. The neatly dressed, gentlemanly salesman always commands a prompt and more courteous hearing than does the sloven whose careless attire is apt to create the suspicion that his business ability and knowledge are on a par with his personal appearance.

The new man enters the employ of the telephone company with a "fair field and no favor." He is given every opportunity to make good, and that we may see just what those opportunities are and what the company aims to accomplish, let us briefly compare the old telephone salesman with the new.

Under the former system, the young man seeking employment as a telephone salesman applied to the Contract Department for a position. If his appearance and character were satisfactory he was engaged and assigned to duty, after some preliminary instruction, limited entirely to rates and the proper method of filling out contracts, supplemented in some cases by a couple of weeks' experience at the counter in the Contract Department. He had not, nor was he given, at the beginning, the slightest knowledge of the mechanism of the telephone; he knew nothing about operating or inside or outside construction, and was, necessarily, densely ignorant of the work of the other departments and their connection with the work of the Contract Department. He could not answer questions in regard to telephone matters other than as to rates. This state of affairs was inevitable, *because he was untrained*. With this slight equipment he was turned loose in an exchange district to work out his own salvation. It is an interesting speculation as to how many such young men, all of whom were anxious to earn a living, most of whom were ambitious to succeed in their work, felt keenly their lack of special knowledge and realized the handicap under which they labored. Of course, any query was answered for him when he brought it into the office, but the point I wish to make is that under the old system the new man *could not answer that question when it was asked him*. He had to come back to the

office to find out. That system was like sending a gladiator into the arena without a sword, and, while he was succumbing to the blows of his adversary, running out to him and saying, "Oh, I beg your pardon, do you need anything?" Of course he needed something. He needed everything, and he had nothing! And it was the recognition on the part of the telephone company of just this need that led up to the establishment of the training school. This was the result of an endeavor to equip the new man, as well as the old, with that comprehensive knowledge of what he is selling that is so essential to success, whether a man be selling telephones or toasting forks.

Nowadays the new man who aspires to be a telephone salesman enters upon his duties with the advantage of instruction from experts in every line of telephone work. His ambition is fortified by the knowledge that everything will be done to place success within his reach, and that if he fails the fault will be with him alone.

Now, then, what does the company do to fit its salesmen to sell? This brings us to our third sub-head—HOW A TELEPHONE SALESMAN IS TRAINED.

The new salesman has now been working for some little time under a local manager, and we will presume has turned in a fair amount of business. Moreover, and more to the purpose, he has displayed sufficient natural ability to apparently make it advisable to give him a technical training in telephone salesmanship. He is, therefore, brought into the main office and placed in the training school. The course in the school covers a period of from six to eight weeks, and during that time the student is paid a salary and is expected to spend all his time in study. The course is so thorough and comprehensive that the man who successfully passes the final examinations is a *telephone man*. While regular instructors are employed in the school, yet from time to time various officials of the company give lectures before the classes on various subjects, and quizzes are given weekly.

The Plant School is distinct from the Commercial, but certain features of it are embodied in the salesman's course. In a word, he is not only told how things are done, but he is shown how they are done, and *is made to do them himself*.

I think you will agree with me that the salesman who successfully completes this course is no longer, as was the case formerly, selling a theory. He is selling something he understands. He knows what he is talking about, and, if necessary, can give a practical demonstration of his knowledge.

Now, presuming that the salesman has all this information at his fingers' ends, let us see what he does with it. This brings us to the fourth sub-head—APPLICATION OF TRAINING.

An illustration on my part will show the advantage of this training to the salesman. If the prospect asks a question about the running of his line, the salesman can answer it; if the prospect wants to know how the calculagraph works, the salesman knows. If the prospect wants to sit back in his chair and ask numerous questions about the company, its work and its methods—as many prospects do—the salesman can talk intelligently. His exhibition of a complete knowledge of what he has come to sell inspires the same confidence and attention that a physician animates when his diagnosis shows you that he understands your case. You then place yourself unreservedly in that physician's hands for treatment. That is exactly how the prospect places himself in the hands of the telephone salesman. He diagnoses his telephone needs with such skill that the man is shown what he should have, why

he should have it and the way to get it. There are few business men today who really know whether their telephone service is adequate or not. By that I mean whether what they have is all they need. And in the case of a new subscriber, he has no idea usually just what he ought to get in order to obtain the best telephone results for his establishment. In this case the trained telephone salesman becomes a consulting expert. It is his part to point out the weak points in the man's telephone equipment, to show and convince the man that they are weak points, and then to raise his telephone service to a plane of absolute efficiency. That is the application of training. The art of the salesman in any line is directed toward securing business. The best salesman secures the best business. The best salesman, nine times out of ten, is the *trained salesman*.

Here's an illustration of the value of applied knowledge and the impression a practical demonstration often makes on a subscriber: Not long ago a salesman, who had recently finished his course in the school, got into an argument with a subscriber about the working of an extension desk set, and to illustrate the point he was making, the salesman took that desk set apart right in front of the man and let him see the "wheels go 'round." The man was so pleased at this that he came to the office and told about it. And now the RESULT OF TRAINING.

Given a trained salesman who applies his training, what may we expect of him? What will be the results of this training? The results to my mind are twofold:

First—The securing of a better class of revenue producing business.

Second—The establishment of a more intimate relation between the company and the telephone-using public.

The latter will be a very strong factor in the accomplishment of the former. You have started to produce the latter result when you have taught the subscriber that the company is not a misty, hazy something. That it is not a something that, as far as his personal relation with it is concerned, simply renders him a bill once a month and takes his telephone out if he doesn't pay. The sooner the telephone company destroys the prevailing impression that it is a monster into whose insatiable maw is poured a constant stream of wealth, and for which as little as possible is given in return, the sooner the subscriber will be led to feel that there is a personality to the corporation—that the company has a personal interest in the subscribers' telephone welfare. And its value is incalculable beyond reckoning. A man gets in the habit of purchasing a certain kind of goods and he keeps on purchasing it—from habit. He smokes a certain brand of stogies—from habit. There may be others as good, but he *knows* that particular brand. It is in recognition of this fact that many of the leading manufacturers now take "personally conducted" parties through their factories with just the idea—of getting acquainted—and introducing the product to the customer.

While there is not always the keen competition in the telephone business that there is in other lines, yet my point is this: The salesman of, for instance, blankets who can tell his prospective customer how the blankets are made, who can trace their manufacture, step by step, from the shearing of the wool to the placing of the finished product on the market, is going to create an interest in his goods. He has established an intimate relation, because his own knowledge has enabled him to awaken the interest of the customer. If you awaken interest you stimulate inquiry, and inquiry results in contracts.

Another point is this: The telephone salesman is to a great many subscribers the company. He is oftentimes the only one connected with the company whom they ever encounter, and their impression of the company and their attitude towards it are often based upon their opinions of the representative. The *trained* salesman takes care that this opinion is a good one. He has been taught to know the value of bringing the seller and the buyer to an intelligent understanding. The salesman is, more than any other employee, depended upon by the company for results. And, in the last analysis, the results depend absolutely upon his efforts, his personality, his knowledge and his *training*.

Being asked to go out and sell telephone service, he is now given a scientific knowledge of the apparatus involved in telephony. The telephone is an instrument of a highly developed type. Its delicate mechanism is the product of years of effort on the part of engineers of the highest class. The telephone is today an integral part of every business enterprise in the country. Its indispensability in the business world is well recognized. And the telephone company itself has realized the necessity for modern methods in selling. Each department of the telephone system is being placed on a modern basis and the most improved methods are being introduced. Nowhere are efficient methods more desirable, nowhere do they achieve quicker results than in the Commercial Department. The trained salesman is a product in the efficient method of selling telephone service.

To sum up, the result of training telephone salesmen will unquestionably be the securing of a better and a more enduring class of business, the establishment of a closer and a more friendly relation between the company and the subscriber.

Bell Transmitters and Receivers in the Making

THE average user of the Bell telephone rarely, if ever, stops to consider the make-up of the transmitter and receiver with which he comes so often in contact. There is no doubt that from his standpoint these are the two most important parts of the telephone system. They are certainly the parts with which he is most familiar.

The transmitter and receiver are two wonderfully complex and delicate pieces of mechanism. In the manufacture of these instruments for the Bell Companies the Western Electric Company takes unusual pains, subjecting each part to many rigid tests before allowing it to become a portion of the finished product. The result of this painstaking work is maximum efficiency over the longest possible period of service.

Fifteen hundred tons of brass, three hundred tons of steel and at least two hundred tons of rubber and other raw materials, including thirty-five million screws, were consumed last year in the manufacture of Western Electric transmitters and receivers.

All of this apparatus is made in the big factory fronting on West Street, New York City, which ranks second only to the immense Hawthorne works of the same company as the largest telephone manufacturing plant in the United States. Some idea of the magnitude of this branch of the telephone industry may be had from the statement that over one million pair of transmitters and receivers were manufactured during 1910. The manufacture, inspection and testing of these instruments, therefore, form an interesting story, and the accompanying illustrations show some of the processes involved.

The transmitter is one of the most delicate pieces of apparatus on the commercial market. Several of its parts must be held to such close dimensions that the Western Electric Company was confronted with the problem of making not only the telephone instruments, but much of the necessary testing apparatus and measuring instruments. Such instruments as those used to measure the thickness of the mica, which is held to within three ten-thousandths of an inch, were made in the Company's own shops. It is interesting to note that in order to secure mica that can be cleft to such small dimensions it is found necessary to import it from India, and that because of the difficulty met with in separating even this selected mica into exactly the right dimensions fully 80 per cent. is rejected.

Another important operation is the manufacture of the carbon granules contained in the transmitter button. These granules must have exactly the right degree of hardness, otherwise the tone of the transmitter will be affected. They must be of uniform size, otherwise the transmitter would have a tendency to pack, and, in addition, just the right amount of carbon granules must be used. The carbon is measured in a cup having a steel cut-off, which insures the correct volume. In order to see that the carbon is running with the right ratio of weight to volume a certain percentage of the buttons are weighed by means of a delicate balance and a close check is kept on them.

The front and back electrodes are also made of carbon. Each is as highly polished as a steel mirror and each one must have just the proper degree of hardness, otherwise pitting would result from the passing currents, which would affect the transmission and might result in packing.

In testing most telephone apparatus, such as generators, drops, relays, etc., it is possible to measure their efficiency in concrete terms and with practically no human factor entering into the results of the tests. Since the primary function of a transmitter is to transmit the human voice, it becomes necessary in testing their efficiency to make use of the human voice, and thus the human element enters. The volume and articulation test is made over a circuit which is the equivalent of an actual line two hundred miles in length. The operator standing at the receiving end signals back to the man testing the transmitter, telling him whether the volume and the articulation are satisfactory. In order to eliminate carelessness as far as possible from this test, the inspectors do the talking and receiving in pairs. In the morning one does the talking while the other is receiving, and in the afternoon the operation is reversed. By long training at this work these men are able to pick out a variation in efficiency to a fraction of 1 per cent. Any transmitter that does not measure up to the standard must go back for readjustment.

Besides the transmission test, the transmitters must also survive what is known as the mechanical inspection, which includes a minute, detailed inspection of every one of the piece parts going to make up a section of the instrument, each group of parts as assembled, and finally the completed instrument.

The receiver is another delicate piece of electrical apparatus and to manufacture it successfully requires special machinery and skilled labor. The steel from which the magnets are made must be carefully chosen and then comes proper tempering and magnetizing. Formerly skilled men were employed to determine when the steel was heated to just the proper temperature for emersion, but after years of ex-

periment a way was devised and placed into effect by which "human error" was eliminated. To-day the temperature of the annealing furnaces is kept at a predetermined uniform heat by means of an electrical indicator. By placing the steel in the furnace for a prescribed time the exact conditions for producing the fine degree of temper are obtained.

Extension of Bell Telephone Talking Radius

The extraordinary success which during the past few years has marked the efforts of American Telephone and Telegraph engineers in still further increasing the talking radius of that system has made possible the announcement that telephone conversation now may be had with practically every point east of the Rocky Mountains.

Some of the more prominent western and southern cities now reached from Philadelphia by the Bell long distance lines are:

Austin, Tex.	Leavenworth, Kan.
Beaumont, Tex.	Lincoln, Neb.
Cheyenne, Wyo.	Little Rock, Ark.
Colorado Springs, Colo.	McAllester, Ind. Ter.
Cripple Creek, Colo.	Muskogee, Okla.
Dallas, Tex.	New Orleans, La.
Duluth, Minn.	Oklahoma City, Okla.
Fargo, N. D.	Pensacola, Fla.
Fort Smith, Ark.	Pueblo, Colo.
Fort Worth, Tex.	Sioux Falls, S. D.
Guthrie, Okla.	Sioux City, Iowa.
Grafton, N. D.	San Antonio, Tex.
Galveston, Tex.	Superior, Wis.
Houston, Tex.	Thomasville, Ga.
Laramie, Wyo.	Topeka, Kans.



Western Electric Switchboard and Station Set Up Outdoors at Nestorville, W. Va.

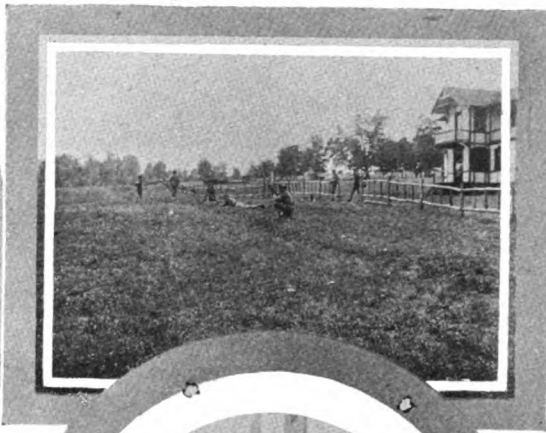
Open Air Salesmanship

About once a year each connecting telephone company throughout our territory holds a meeting to elect officers, discuss ways and means and so on. Among those present there is usually a Western Electric representative, who explains the advantages of new styles of equipment.

Down at Nestorville, W. Va., the Citizens United Telephone Company held its annual meeting. So many were present that the hall in which it was planned to seat the stockholders and exhibit the Western Electric apparatus couldn't accommodate both. It was a bright day, so the Western Electric man placed his No. 1800 switchboard in the doorway and screwed a number of rural sets to the outside of the building.



Views of Pennsylvania National Guardsmen's Rifle Range at Mt. Gretna, Pa.



Left to Right :
The 500-yard Pit, 600-yard Firing Point and Pit, and Marksmen's Quarters.

Telephones an Aid to Rifle Practice



HE telephone played a prominent part in the recent annual state rifle competitions conducted under the direction of the National Guard of Pennsylvania on the rifle range at Mt. Gretna. More than one hundred expert riflemen were able to be employed continuously throughout the day in matches varying in range from 200 to 1,000 yards with practically no delay, and the feat was made possible only by the free use of telephones installed at the firing points and in the pits.

The riflemen were at all times kept in close touch with the results of their efforts, since it was possible to prompt the markers in the pits whenever necessary. Thus a record of shots which had escaped their first search of the target was obtained.

When the hour arrived for the opening of a match the officers in charge of the men in the pits were notified by telephone and thereafter during the progress of the match the instruments came into play continually. Again, when anything went amiss in the pits it was the telephone which carried the message back to the firing point and a change of target was effected without unnecessary loss of time. All of this was accomplished by reason of the fact that intercommunication was afforded between each station.

Arrangements for service were completed by the Commercial Department through the Lebanon Office. Instruments were installed on the

grounds as follows: One at arsenal, one at headquarters, one at 1,000 yard firing line, one at 1,000 yard pit, one at 300 yard pit, one at 500 yard pit, and one at 600 yard pit.

The Automatic Telephone

Excerpts from "Telephone Management in Large Cities," by Fr. Johannsen, Managing Director, Copenhagen Telephone Company, January, 1911.

"The choosing of the right telephone system for a large city is a matter of far-reaching technical and financial importance. And the writer has endeavored . . . to analyze the question on the basis of practical experience in Copenhagen, which, with regard to the number of telephones per inhabitant, is some years in advance of most other European cities."

"Copenhagen, with its 500,000 inhabitants, has nearly as many telephones as Hamburg, which is more than twice as large, and as Vienna, which is four times as large, while it has twice as many telephones as Munich and other cities of the same size."

"The large expenses of handling calls have in several European cities, especially in Germany and Austria, raised the question of automatic exchanges. To this must be said that an entirely automatic system will not allow of

competition with other systems in the case of small subscribers. It does not pay to set up automatic apparatus which will only be operated once or twice a day. It furthermore seems doubtful whether the automats, which may be excellent for ordinary subscribers, are suitable for large subscribers having their own switchboards and heavily loaded exchange lines. The experience, for instance, of Chicago does not point in that direction. In regard to the wider distribution of the telephone, which must be the object of the future, the full automatic system will not offer the right solution."

"Matters are quite different with regard to the latest system from America, namely, the semi-automatic system, taken up by the great Bell organization as well as by independent companies. As is known, the object with these semi-automatic systems is to let the operator, and not the subscriber, use the automat. As far as can be judged, this system may present a solution, providing as it does a cheap and proper handling of calls for the large as well as for the small subscribers."

Genuine Salesmanship

"May I see your range?" said a gas range salesman, who had been told that the prospective purchaser was already supplied. By manifesting a further interest, he continued the interview, gained admission and sold an appliance, which not only brought an immediate profit but added to his company's regular monthly revenue. The "further interest" salesman sold 150 of these appliances in a single month in addition to a number of ranges.



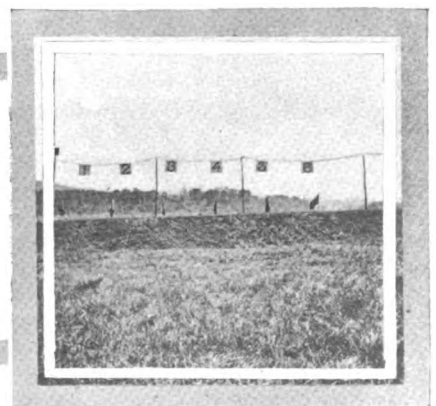
Riflemen's Headquarters



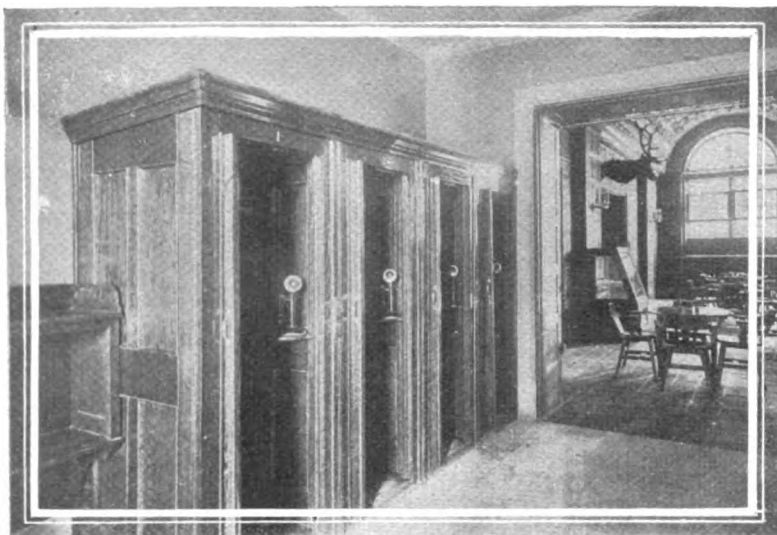
Mess Headquarters



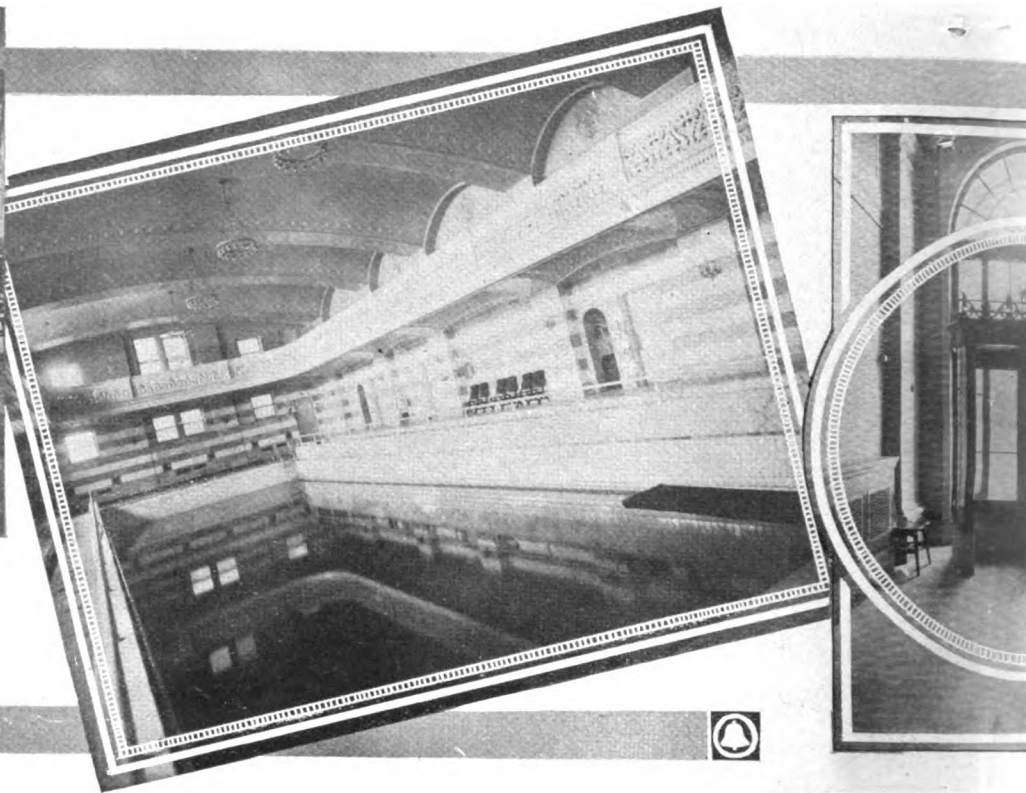
1000-yard Firing Point



300-yard Pit



Left to right :
Main Lobby, looking toward Grill Room.
Natatorium.



Pittsburgh's New Club

Quite some years ago John Ruskin gazed upon the Palazzo Grimali in Venice, made a few notes and wrote this of Sanmicheli's handiwork: "There is not an erring line, not a mistaken proportion throughout its noble front." Ruskin must have hit the nail on the head, for architects will tell you that proportion as exemplified by the Palazzo Grimali is something toward which to strive—with the slimmest sort of chances for attaining an equal.

Pittsburgh has recently been provided with a building in the exterior of which the beauties of the Palazzo Grimali are mirrored. This is the new home of the Pittsburgh Athletic Association. The building was opened in April, and while the exterior owes its attractiveness to the Old World, the interior contains about everything the New World offers for a clubman's convenience. When you know that James J. Duffy, Manager of the P. A. A., sat on a like job at the New York Athletic Club for 21 years, you can easily see that an institution equipped after his ideas could not be lacking in essentials. Here are a few of the details:

The natatorium is finished in green and white terra cotta after the character of the baths at Caracalla. The pool has five distinct linings, the combined weight of which is 22 tons.

Most of the rugs and hangings that go a long way toward decorating the clubhouse were woven on Basselisse looms manipulated by weavers imported from Aubusson, France.

Albert Herter, of New York, did most of the decorations—from the large painting over the lobby fireplace to the tiny candle shades in the dining room.

As might be expected, the grill room is Elizabethan in design, with huge fire places bearing city, club and college seals.

In the way of exercise, it is possible for a member to try the whole range of exertion, from twanging a bow in archery to putting on the gloves with "Joe" Chynoski.

From a telephonic point of view, The Pittsburgh Athletic Association is complete. There are 80 Bell telephones distributed throughout the building. Shooting galleries, gymnasiums, Turkish baths and billiard rooms all are provided with standard Bell equipment. The stations are con-

nected with a private switchboard installed on a mezzanine floor near the main entrance. There is a bank of booths between the lobby and the grill room. The whole of the top floor is made up of bachelor suites, and each of these has its own Bell telephone.

So, you see, though a man be in the midst of a pummeling at the hands of a Swedish masseur, a short recess will enable him to reach a telephone, instruct a junior member of his firm or talk with a colleague a thousand miles away.

Annual Meeting and Banquet of the Western Pennsylvania Telephone Society

The 1911-12 season of The Western Pennsylvania Telephone Society was most profitably and pleasantly inaugurated at Harrisburg, Thursday evening, September 21.

The first item of the evening's programme was the business meeting and election of officers for the ensuing year. The following were chosen:

Officers: Jno. Bailey, President; C. A. Schell, Vice-President; E. Ebenbach, Secretary; G. D. Smith, Treasurer. Board of Directors: C. Reutlinger, Chas. A. Donachy, W. A. MacLaughlin, F. F. Lutz, W. A. Kershner, F. E. Cowan, W. J. C. Jacobs, H. F. Hope, G. A. Detz.

Next came the reading of an exceptionally interesting paper on "Modern Telephone Construction Methods," by H. F. Hope, Electrical Engineer. A wide variety of stereopticon views helped considerably in making this feature both entertaining and instructive.

The members of the Society and their guests then adjourned to the Commonwealth Hotel where the House Committee ushered them into the dining-room and invited them to sit down to what proved an unusually appetizing dinner.

J. H. Crosman, Jr., Division Manager, presided over the tastefully decorated tables, and in his official capacity as toastmaster added new laurels to his reputation in this line.

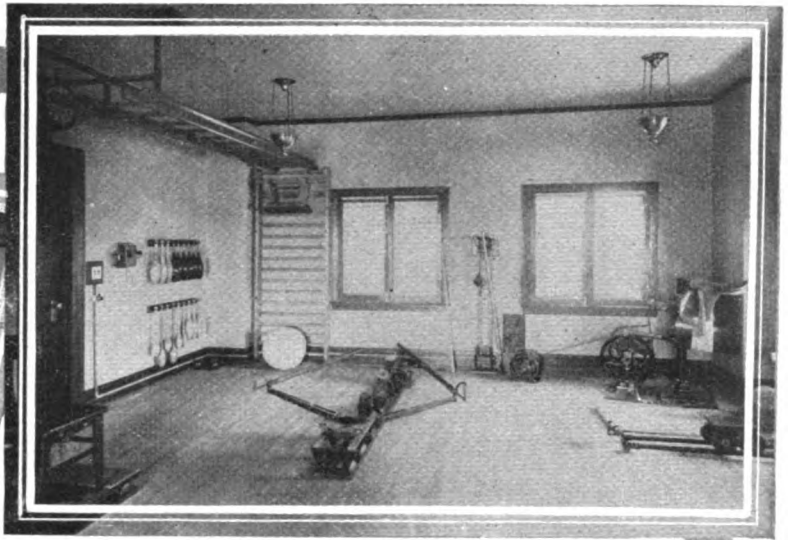
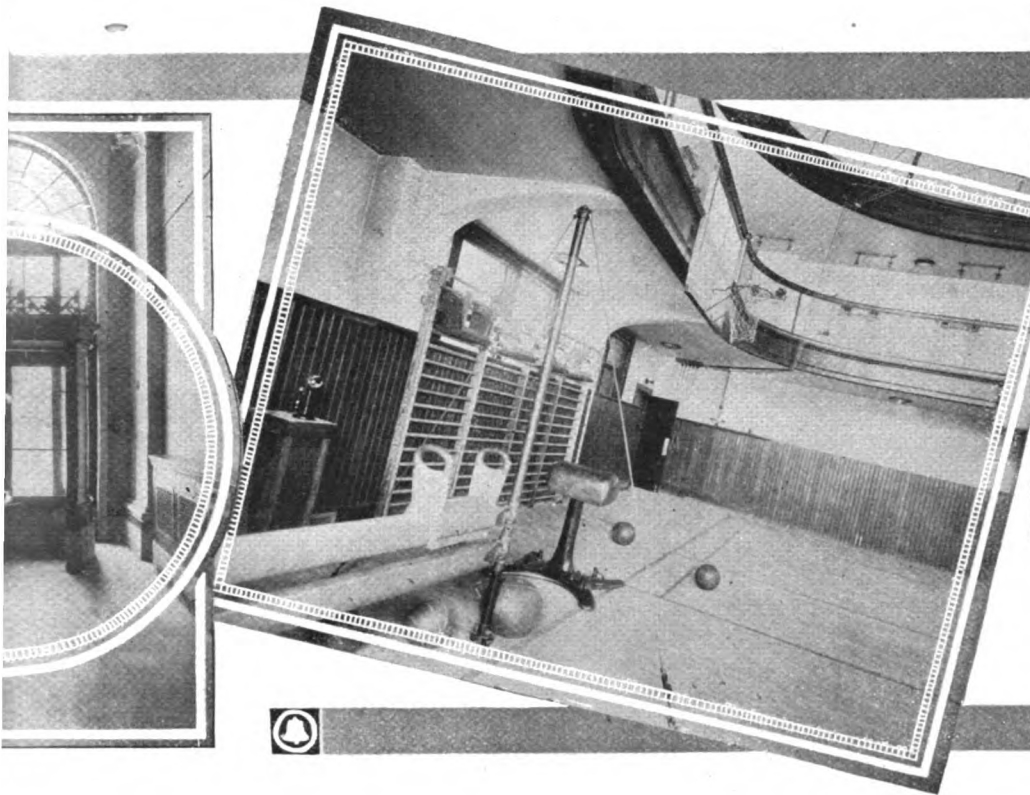
Eight scheduled speakers mingled jokes, stories and inspirational thoughts until a late hour, when Toastmaster Crosman declared that the time had come to break up the most successful and enjoyable gathering in the history of the Society.

Views of Pittsburgh Athletic Association

(A close examination of the illustrations will



Main Entrance, Pittsburgh



Family Entrance.
Corner of Main Gymnasium.
One of the Private Gymnasiums.

tion's Magnificent New Club House.
(I show at least one Bell telephone in each.)



Athletic Association Building.

Philadelphia Division W. RITCHIE, Division Correspondent

A new switchboard has just been installed in the railroad station at Market Street Ferry, replacing the former equipment. The new board is of the most modern type, and the new booths in connection with it are especially designed to conform with the interior of the building, which has recently been remodeled.

Salesman D. B. Burt, of the Main Line District, made a fine record for a forenoon's work, turning in 11 new applications for service on the morning of September 15.

A new private branch exchange has been installed at Haverford Court. There is a telephone in every apartment, thereby putting every tenant in direct connection with the entire Bell system. Intercommunication service in apartment houses is a new departure for the Main Line District, but it is rapidly becoming popular.

That the telephone is universally used as a means of identification was demonstrated again on Labor Day, when a package was delivered at the Poplar Wire Chief's office with the address: "Dr. T. H. Smith, Pop. 1805, care of Bell, Philadelphia, Pa., U. S. A."

Poplar 1805 was called and the package, a medical book from France, which Dr. Smith had been expecting soon, reached its final destination.

At a block party given in West Philadelphia by the North American Children's Outing Society, the lady in charge of the cake table was able to sell two cakes by telephone to people who knew the party was being held, but who were unable to be present.

The new Lansdowne exchange building on Baltimore Pike is rapidly nearing completion, and when finished, it will be one of the best of our small exchanges. The building is of brick and is of an attractive design. The first floor includes the operators' retiring room and the Wire Chief's office, while the second is occupied by the operating room. The new switchboard has eight positions, two more than the old board, and an additional toll position, thereby assuring subscribers the best possible service.

A Ghostly Intruder

The *Evening News* of Wilkes-Barre, Pa., prints the following story of an experience that befell this Company's operators in the neighboring Pittston exchange:

Three young lady operators for the Bell Telephone Company at Pittston saw a ghost last night while sitting at the switchboard, when a man bleeding from numerous cuts about his face and hands and clad only in a night shirt, jumped through the skylight of the building in which the exchange is located, and landed by the side of the girls in the room while they were at work answering calls.

The police station is directly across the street from the telephone company building and the cries of the girls were heard by Chief Price and Mayor Golden, who happened to be in the mayor's office. They rushed across the street.

"What's the trouble?" shouted Chief Price.

The girls were unable to answer.

"Oh! dear, here he comes," repeated one of the girls as she looked around and discovered the man in the night shirt making his way to the stairs.

He was a man named Roach who was ill with fever, and who, in the absence of his nurse, got out of bed in his room on Main street, made his way through a trap door to the roof of the building and then walking over the roofs of two other buildings got onto the roof of the Lamb building on Water street, in which the telephone company occupies the two upper floors. There is a skylight on the roof of the Lamb building and under this skylight in a spacious room are the switchboards. When Roach reached the roof of this building he decided to try and make the street by way of the skylight, and bursting through it came tumbling down with a crash of broken glass by the side of the girls.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

An Easton, Pa., salesman overheard a complaint made to the opposition Company's manager relative to poor service. This subscriber had been canvassed by our salesman for four years, but refused to sign on account of his close friendship with the Opposition Manager. After overhearing this complaint, he at once made it a point to see this subscriber and secured his application for service to be installed on the first of October in place of the Opposition.

An Allentown subscriber came into the Commercial Office to pay his telephone bill, and stated to the Cashier that he had entirely forgotten the matter as he placed the bill in the *chicken-hole* of his desk, and was unable to find same.

An example of how decidedly "up against it" an employee unfamiliar with German would be in the Allentown District office is contained in the following:

Hochwohlgeborer Herr:

Ich habe das neue Telephone-Buch verlohren, bitte sehr schicken Sie mir noch ein Buch.

The reply was as follows:

Hochwurdiger Herr:

Ich habe soeben bei Post ein Telephone-Buch an Ihre Adresse geschickt. Wenn Sie dasselbe nicht pünktlich erhalten, bitte lassen Sie mich wissen.

During the month of August a letter was received at the Bethlehem Office from a subscriber who had had our service for five years, requesting that we disconnect the station September 1, as he could no longer bear with party line interference. He was visited by a salesman with a view to signing him for a better grade of service, but he refused to comply, claiming he could get along without a telephone. When the Plant man disconnected the telephone his daughter shed tears, and the wife declared she would have the telephone service installed again. With this information the salesman called on the husband, and he again refused to sign for service. Two days later he called at the Business Office and asked us to please hurry with an application as he could not safely go home until he again signed for telephone service. He applied for two-party line service.

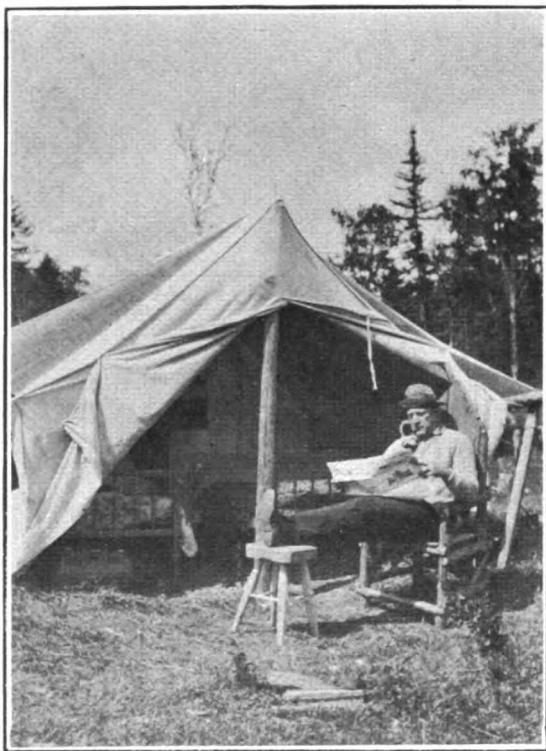
The following is part of a lengthy and decidedly amusing letter received from a local subscriber:

Kind Friend:

I do not wish to make any bad feeling's or even make you feel offended against me Mr. ——. I like my telephone very much and every thing goes fine. But I wish to remind you of your promise in reference to my agreement or contract if you remember. You told me if I would take or pay \$1.50 Month for the telephone I could speak free of charge to McChunk here is a bill due to me for 5c to talk to McChunk. I do not hesitate to pay my dues and you will always find my phone paid in advance and I am willing to pay the 5c but I wish you would remind the people at Harrisburg. Now Mr. —— kindly do not say any thing to the young ladies or operators if they made a mistake in charging me I wouldn't want them to be called down nor even accused we have very fine good operators they would do any thing for the Phone holders. Not because they are girls from my town why they give you any information

you ask them nothing is too much trouble for them. About 2 Week ago I had to call up McChunk throo the night I told the operator I was sorry to annoy her. You no what she told me. She told me you ring up Mauch Chunk or anybody else just as you feel like you are paying for your Phone and we are hear for that purpose. I thought that was very kind of her. — — — — —

Salesman B. H. Overbeck obtained an application September 20 from the Lindner Shoe Company, of Carlisle, for a branch exchange of switchboard and 8 stations.

**The Telephone News in Maine**

The accompanying illustration shows one of this Company's local managers deeply engrossed with a copy of the August 15 TELEPHONE NEWS. We have it on good authority that the paper "looked good" to him in the midst of his fishing and camping trip—especially so since it had traversed many hundred miles by steamer, canoe and foot messenger before reaching the camp in the wilds of Maine.

An Item of "Fusses"

District Manager W. F. Bush, of Reading, Pa., is authority for the following "Pennsylvania Dutch" joke:

A former local manager at Lebanon was called by telephone before he arose from bed one cold winter morning, and on picking up the receiver, heard something like this:

"Say, Mr. W., this iss the agent from the O— Rural Line. Chust now I haf from the Western Electric Company a bill received. I vandt to ask you about it. It reads—'To 25 fusses,' adt so much. Now, look here, Mr. W., iss it right that we pay for the fusses what we haf mit the Western Electric Company? Seems to me like it's badt enough to haf 'em."

The local manager was puzzled for a moment. Then he had an inspiration.

"What did you say that item was?" he called. "Fusses," repeated the rural man.

"Spell it, will you?" he requested.

"F-u-s-e-s, Fusses."

Baltimore Division**J. R. BROHAWN, Division Correspondent**

The new Long-Distance-Toll combined switchboard in Baltimore will be cut into service in Baltimore on October 15. The switchboard is located in the telephone building at 5 Light street, and consists of:

- 2 Positions for Service Observing
- 6 " " Method 103 Inward and Straight Through
- 8 " " Method 103 Outward and Relayed
- 1 " " Information Bureau
- 3 " " Method 107 Outward and Delayed

9 Combined Line and Recording Positions for Method 103 Outward and Method 107 Outward.

Also, a Directory Desk,

Chief Operator's Desk,

Repeating Booth and Supervisors' Sets.

Method 107 will not be put in service until the completion of cable between Philadelphia and Washington. This method is used between stations where the traffic is heavy enough to justify using a call circuit between the two stations. The outward or "L" operator, by depressing a button on her position, is immediately connected with an operator at the inward station, to whom she passes the order for the telephone number desired. The operator at the outward station rings and deals directly with the person answering. This method permits of very fast service and resembles very closely the method of establishing calls between different central offices of a multi-office district.

The installation of this switchboard was made necessary by both long distance and toll business outgrowing their present switchboard capacities. It is of the most modern design for handling the traffic with speed, accuracy and efficiency.

Hagerstown District

The work on the new conduits at Frederick, Md., was completed September 9. L. B. Holland who was in charge of the work, has been successful in pleasing everyone and has called forth much praise for the Company on the excellent work being done, particularly in repaving the streets. Mayor Schell states that the work of tearing up the streets and replacing the paving was the quickest job that has been done in Frederick for some time. This was especially timely, for at the present time there is a street gang laying new water pipes, and the street railway company's gang. The Company laid 3602 feet of conduit, which, in connection with the 1804 feet already down, gives Frederick a very good system of underground conduit, with a total of 5406 feet.

The Mt. Airy Telephone Company, with 11 stations, has been connected with the Chesapeake and Potomac Exchange at Hagerstown. The interior and exterior of the Chesapeake and Potomac Company's building at that place has been remodeled and repainted.

An estimate has been approved for rebuilding the trunk line between Williamsport, Md., and Martinsburg, W. Va. PLANKINTON.

Stationery Notes

Supplies made standard are as follows:

Dixon's A. G. S. M. 249 and 250 pencils, replacing No. 2 and No. 3 Bell Telephone Company pencils respectively.

Blaisdell pencil holder, replacing present supply when that is exhausted. There will be no change in code number at present.

No. 3 Bell water-marked bond paper for all interdepartmental correspondence.

Courtesy

By Florence I. Smith, of the Scranton Operating Force

There is nothing so characteristic of refinement as courtesy, but to a telephone girl it is especially valuable. Promptness in answering calls is not to be disregarded, but to the public nothing so indicates the rank of the Company as the courtesy of its employees. During business hours a man or girl is expected to sink his or her personality in that of the firm by whom he or she is employed and the successful employee is the one who can do this best. That is why the business man who is unable to care for all customers engages others to help him in transacting his affairs. It is necessary then for these employees to represent their employers in such a way as to secure the best results. But it is all very well for an outsider to say, "Be courteous." He seldom realizes what control is required to be courteous at all times. In order to illustrate this I will relate a little incident which was told to me by a friend.

A few days before last Christmas a mother hearing her three year old son in another room, called him to her and seeing his eyes full of tears and a disappointed look on his face, inquired what was the trouble. This was his trouble.

"I only called up the North Pole and asked for Santa and Mrs. Santa said, put down that receiver and go away from the telephone."

When a man or woman goes into a rage because the party he or she is calling does not answer and storms at the operator for it, *then* it is not always easy to resist a sharp retort; but we should at least endeavor to do so. Courtesy is the outward sign of culture. It may also be the outward cause. It is impossible to frown and scowl and at the same time be cheerful.

Frown and you become ill tempered; smile and the inward frowns will disappear. Be courteous and in time if you are sincere it will have an effect on your character. This in turn will reflect and make the task easier. We should all bear in mind that courtesy is best at all times, it costs little and pays a high rate of interest.

Regarding Profanity via Telephone.

A Pittsburgh paper has the following to say, in an editorial vein, under the caption "Profanity Should Be Banned."

"A citizen has written a letter to Councilman A. J. Kelly, expressing the opinion that it is an outrage that telephone girls should be compelled to hear language not fit for respectable ears. The complaint doubtless has some foundation, or the letter would not have been written. To what extent the telephone girls are subjected to the humiliation of being obliged to listen to bad language is probably known only to the girls themselves, but there ought to be a way to put a stop to it. Persons who so far forget themselves as to use foul or profane language over the telephone ought to be punished. Doubtless there are many difficulties in the way of punishing the offense as it deserves, but one procedure is open at least, and should be put into effect. The telephone companies should instruct their operators to disconnect immediately persons who offend in this particular.



Motor Vehicles Prove Their Worth

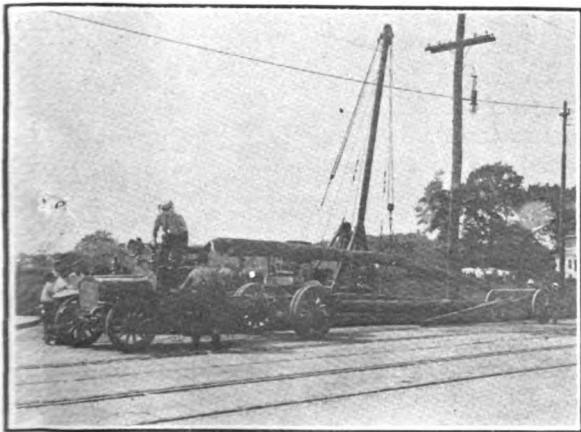
(Continued from Page 1)

Jersey seashore resorts where these trunk lines terminate.

At 9 P. M. the Atlantic Plant Supervisor and a gang foreman started for the break in the Supervisor's Mitchell car, loaded with 5000 feet of No. 18 B. & S. twisted pair bridge wire to provide temporary service. At 9.50 P. M. a gang of men had been obtained, the truck loaded with the necessary material, tools, etc., and started for the break, a distance of 34 miles from Atlantic City. This distance was covered in one hour and thirty-five minutes, the men arriving at the scene of trouble at 11.45 P. M. The Ocean City Wire Chief left Ocean City at 9 P. M. with two linemen in a wagon and arrived at the break five minutes ahead of the truck, covering the distance of 12 miles in two hours and forty minutes.

By the aid of oil lanterns and the searchlights of the automobile all trunks were temporarily O.K'd at 12.45 A. M.—one hour after arriving on the job, and at 3 P. M. a new 35 ft. pole was set and cross arms placed. After completing this work daylight had to be awaited before the bare wire stringing could be started. At 7 A. M. the entire job was completed, new wire run and tied in, slack pulled, guys tightened, junk wire packed in truck, and the job permanently O.K'd.

After completing the job it was learned that there was more trouble to be cleared in the district and the truck was started for Tuckerton, New Jersey, about 9 A. M. Arriving at Tuckerton at 11 A. M. the gang cleared all trunk and subscriber line trouble; left there at 3.45 P. M. and arrived in Atlantic City at 5.45 P. M., covering an entire distance of 119 miles with the truck in a most satisfactory manner.



Utilizing Truck's Engine in Loading Poles



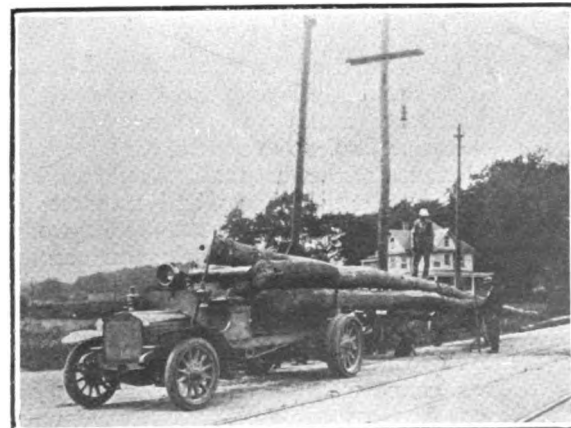
Toll Coupon Work in Pittsburgh

In a period of about four weeks thirty-six jobbers and wholesale dealers in Pittsburgh were convinced of the desirability of distributing toll coupon booklets to their customers. From 500 to 5,000 booklets have been ordered for general use by firms in practically every line of business, including dealers in hats, lumber, notions, machinery, tanks, produce, glass, groceries, oil, powder, harness, electrical supplies, flowers, drugs, confectionery, cigars, meats, tile, clothing, caskets, shoes, hardware, hay, grain, jewelry, stoves, paper, butchers' supplies and other lines. When a particular firm was approached practically every argument was used to close the deal in order to interest those in every line. Thus when the dull season for any business arrives some other business will be at its height, and the telephone toll business will be benefiting all of the time. Over 50,000 booklets have been ordered although the quantities for each firm were kept within conservative figures based on their numbers of accounts. It has been estimated that if only ten per cent. of the coupons result in a reasonable toll the telephone receipts will be over \$4,000. The placing of these coupons in Pittsburgh is in charge of J. A. Connell, Special Agent.

Montreal Hospitality

The spirit of fraternity so often mentioned as a characteristic of telephone men again was evidenced when the "Tioga" and "Poplar" Chief Operators, of Philadelphia, dropped in on the Bell telephone authorities at Montreal, Canada, while on their vacations.

The Chief Operators in question report that they were received with open arms, were shown through all the various departments of the Company of that place, were acquainted with the several necessary differences in operating methods, and were made to feel at home in every possible way.



A Load of Seven 55-Foot Poles

Atlantic Coast Division**J. R. ANDERSON, Division Correspondent**

Bridgeton Sub-District. The Traffic Department's quarters at Bridgeton have been remodeled by making the room larger and taking in more windows. This gives much more air and light. This larger room, with the new section added to the switchboard, have improved traffic conditions greatly.

The new 25,000 feet 50 pair 16 gauge cable between Shiloh, a farming community, and Bridgeton is now in place.

New aerial cable and underground plant are being erected at Chestnut Ridge, a new residence town along the electric railroad at Glassboro, N. J.

The Plant Department is placing new poles and aerial cable in Penn's Grove to repair the damage done by the severe electrical storms of this summer.

LORE.

Camden District. The reed and rail bird season appears to be a good one in and along the marshes of South Jersey. The gunners, while the sport is profitable to them, do not seem to consider that the telephone cables and wire are in constant jeopardy. We have had considerable trouble in line breaks and punctures due to shot, keeping our trouble men on the jump, and possibly some of the offenders themselves complain of being out of service.

A subscriber wrote our district office to cancel his contract at once. Upon making an investigation, it was found that the Traffic Department, having instructed the operators to roll or trill their "threes," the subscriber (who was of Yiddish nationality) thought he was being mocked, and claimed "He would not stand being sassed by the little devils of girls, and right to his face at that." The idea was thoroughly explained and he laughed at the idea. He is now in a perfectly friendly mood.

CROXTON.

Dover District. An enterprising physician recently moved to Dover, and among the innovations he introduced was a method of handling professional calls to patients by telephone.

Each morning he takes his list of patients and calls their homes, ascertains the condition of each and then decides whether a personal call is necessary. He has a card index, and each card bears information concerning a patient. On each his progress is noted daily. The card gives much other information, including, of course, the telephone number.

This method has found much encouragement. It saves a professional fee in many cases, allows the physician to develop and care for a growing office practice and brings people to appreciate the telephone call and regard it much on the order of an added personal touch.

PRINCE.

Doylestown District. While soliciting for rural line service in the vicinity of Doylestown, our rural line salesman encountered a farmer who was "hard of hearing." During the course of the conversation the farmer's wife stated that their family physician had recommended the telephone, not only because of the fact that it would aid him to communicate with friends and transact his farm business, but further stated that it would prove very beneficial to his hearing on account of the action the telephone would produce on the ear drum.

The Bridge Valley Rural Telephone Company, a Plan "A" rural line contract of seven stations, was connected with the Doylestown exchange on August 9. It will serve a community which was formerly without telephone service.

HENNESSY.

Norristown District. Plan "A" contracts have been closed with the Hatfield Rural Company for eight stations connected with the Lansdale central office and Brookdale Rural Company, nine stations connected with the Souderton central office. These lines will give telephone connection to a rich farming section, which heretofore did not have Bell service.

A No. 2 private branch exchange application for five stations has been signed by L. G. Stritzinger, baker and confectioner, Norristown. This supersedes a direct line with two extensions.

West Chester Sub-District. The West Chester State Normal School recently applied for a monitor line with 7 stations. This will replace an intercommunicating system owned by the school and maintained by an opposition company. It will necessitate the running of about 900 feet of outside cable to complete the job.

The Western Electric Company is busily engaged on our new central office at Coatesville, which will be located in the new National Bank Building. An 8-position switchboard, No. 1 type, will be installed with all latest improvements. The cut-over is expected about the first of the

One of the West Chester District trouble men met with a very cool reception a few weeks ago. During the series of heavy rainstorms and floods, as he was driving near Chaddsford, Pa., he attempted to cross a bridge over one of the branch streams of the Brandywine. The stream was swollen so high that the bridge was out of sight. Just as his horse got to where the bridge should have been he found that it had been washed away. He was struck with the full force of a very strong current. Luckily the horse kept on until the bank was reached, and he escaped with a fine cold-water ducking.

GREENFIELD.

Wilmington District. The efficiency of the Bell Telephone and its universal system was clearly demonstrated recently at the New Castle County Fair Grounds.

The Baltimore police department telephoned the local police asking them to locate the chief of a Romanian Gypsy Camp, and have him communicate with the chief of a band who were encamped on the suburbs of Baltimore. This information was handed to a motorcycle officer, who in a few moments, despite the downpour of rain, appeared at the exhibit of The Delaware & Atlantic Telegraph & Telephone Company with the chief, and asked for a connection with a Baltimore telephone located nearest the camp. Within eight minutes the connection was established, messenger service at the Baltimore end being required to summon the chief. Then followed an animated conversation, which, needless to say, was not understood by an interested gathering who were attracted to the scene by the appearance of the quaint garb of the gypsy accompanied by a police officer in uniform.

Under most trying conditions due to four days of incessant rain, the exhibit which was installed at the grounds of the New Castle County Fair Association, both from an operating and plant view-point was highly successful. Too much credit cannot be given to the Plant, which had an unusually difficult job due to our limited space (10 feet by 10 feet) with the front entirely open and the floor saturated with water.

The outfit, consisting of a No. 1 board equipped with four trunks, a ringing circuit and thirteen stations was installed August 28.

Excellent service was given from 8 A. M. to 5 P. M., and at five o'clock each station was called and the subscriber notified that service after that could be had from the public stations, one being trunked through. At the request of the Association toll calls were allowed only from public telephones.

Washington Division**R. G. HUNT, Division Correspondent**

B. B. Bradford, a local real estate dealer, after being served for years by one flat rate business station, has changed to a private branch exchange of four stations.

Barnette Brothers, a large automobile firm, has installed private branch exchange service throughout its establishment.

The New Winston Hotel, at First & B streets, N.W., will be completed by the end of September, and we have received an application to proceed at once with the installation of its private branch exchange system. This system, as originally planned, was to consist of 60 stations. Subsequently it was found that 60 would not suffice and 20 more were promptly applied for.

The following incident, which has been reprinted all over the country, is said to have had its origin in this city:

Mrs. —, whose handsome residence is equipped throughout with private branch exchange service, recently engaged a Swedish cook. After going over the menage in detail with the new girl, she started in to initiate her into the mysteries of telephonia. To show her how it was done, Mrs. — called up the grocer and ordered a dozen eggs. She was then called upstairs to attend to some matter which detained her about twenty minutes. When she returned to the kitchen to continue her course of instruction, she was amazed to find the Scandinavian import woodenly standing with a pan just under the transmitter mouth piece. "What on earth are you doing there!" exclaimed the lady. "Ay ban wait vor dem aigs." The pan had been lined with towels to break the fall of the eggs from the mouth piece, from which Christina confidently expected they would come tumbling.

A strong campaign is planned by the local telephone society for the coming year. The executive committee recently met and mapped out in a general way its plans. The first meeting will be held on October 5, and it will be noteworthy in several ways. The speakers have not yet been announced.

Four applications for telephone service were signed and several inquiries for rural lines, as well as a No. 2 private branch exchange for a physician's residence.

Saturday was the only fair day we had. Forty-five hundred Bell pins, being celluloid and of course waterproof, were in demand all the time. We feel that our time and expense were well spent, as it was the first time in the history of the Fair that any other than party line service was used.

Underground work in Wilmington is progressing on the following streets: Union, between Lancaster Avenue and Sixth Street; Red Oak Road and its extension, Brinkle Avenue; River-view Avenue, from Delaware Avenue to Fifteenth Street; Union Street, between Pennsylvania Avenue and Seventeenth Street; Scott Street, from Lancaster Avenue to Sixth Street; Franklin Avenue, from Lancaster Avenue to Sycamore Street.

Salesman Kirk, the rural man in the Wilmington District, signed The National Fibre and Insulating Co., of Yorklyn, Del., for a Cordless Board, which supersedes a party line and extension service.

CHAMBERS.

Pittsburgh Division
L. W. GRISWOLD, Division Correspondent

Pittsburgh District. There is a club in Pittsburgh that frequently uses long distance service. Among the items charged to this organization in June was one of \$21 for a long distance call to New Jersey. A few weeks later another item for a call to the same state resulted in a charge of \$44.50.

When presented with the bills covering those two calls, the club president called up the Down Town office and said the calls were "unauthorized" and he would not be responsible for payment.

This president is somewhat of the diamond-studded, plaid-suited variety, and a few days after his refusal to pay he presented himself and a bill roll of bills at the telephone office. Without hesitation he peeled off \$65 and obtained a receipt.

"Did you find out who made the calls?" inquired the cashier.

"You bet," said the club president. "Our steward has a son about eighteen years old. Last June the boy's sweetheart moved to New Jersey. He had been used to making 25 and 30 cent calls around here. Guess he didn't think it would cost any more to talk to the girl in New Jersey. So there you are. 'Stung again.'"

The Central District and Printing Telegraph Company has a joint exhibit with the Western Union Telegraph Company at the Pittsburgh Exposition. A standard private branch exchange switchboard, with seven trunks and fifteen stations, is installed. An operator and a salesman are in constant attendance. The space, 20 feet by 40 feet, is enclosed by a 100-pair lead cable, supported by a messenger and aerial rings. Over head eight signs are placed. Inside the space are displayed various types of telephone equipment.

The Western Union Telegraph Company exhibits its former and new style equipment, including stock and baseball tickers. The stock ticker gives the quotations of the Pittsburgh and New York stock exchanges, while the baseball ticker gives the "National" and "American" score by innings. One day 1,015 visitors passed through the booth. A large quantity of advertising matter is being distributed.

To all intents and purposes Pittsburgh covers about all there is to Allegheny County, the census man to the contrary. In this respect recent figures in regard to the extent of our plant in that county may prove interesting. All of the figures apply to single wire miles.

Underground Wire	95,000 miles
Aerial Wire in Cables.....	66,500 miles
Open Exchange Wire.....	6,950 miles
Open Toll Wire.....	5,930 miles

There are 109 miles of conduit in Allegheny County. Back in 1883 there were 14 exchanges in the county. Now there are 44. At that date the number of stations in service was 1,920, while to-day we have almost 70,000.

"You would be surprised," said a Plant man the other day, "how many new subscribers refuse to take the drop number 13. Only yesterday a man down in Sewickley held up an installation for this very reason. One of the installers suggested that in this case Drop No. '4-11-44' be used. This tickled the new subscriber immensely, and he promptly applied for that number."

One of the largest glass manufacturing concerns in the Pittsburgh district has discovered a new method for insuring the completeness of its temporary no-credit-allowed list.

This concern has issued instructions to its private branch operators about as follows:

"When the Bell Telephone Company informs you that one of our customers is temporarily disconnected, call our credit department at once."

In commenting upon this the other day, the head of the credit department said, "Any customer of ours that can't afford to pay his telephone bills is not one to whom we wish to extend credit. Of course, upon learning that the telephone is disconnected, we look up the man in question, and sometimes it happens that he is out of town or something like that. But we know the chances are that his credit is ebbing when his telephone bill remains unpaid."

Butler District. The officials of the Borough of Zelienople and various local newspapers speak very highly of the assistance rendered the officials by our operator at Zelienople in giving information as to burglars operating in that vicinity.

A representative of the United States Geological Survey had occasion to make very extensive use of our toll lines in the Bradford district a few days ago, the long distance lines being in use continually from 10 o'clock in the morning until 5 o'clock in the evening. After having completed his day's work, he called on the Local Manager and complimented the service very highly. He stated that while he was a daily user of our toll service, he could not speak too highly of the prompt service and clear connections received that day. The following day the operators received a large box of candy to show the gentleman's appreciation.

A subscriber whose telephone had been temporarily disconnected on account of non-payment came into our New Kensington, Pa., office a few days ago, paid his bill and said to the Manager: "Oh, Mr. Manager, please make my telephone open!"

Two men, giving their names as Frank Anderson and Harry Reynolds, were convicted and sentenced to eighteen months in the workhouse by the Butler County Court on a charge of entering pay stations of this company in Butler with intent to steal. They had entered two different pay stations and were caught by the burglar alarm system.

WARRICK.

Erie District. The installation of the private branch exchange for the New Struthers House, Warren, Pa., has been completed. The equipment in use consists of 42 stations, 2 trunks and 1 101-type oak board.

Private branch exchange service has also been established for the Warren Table Works and the Struthers-Wells Company within the past ten days. The former consists of 2 trunks, a 10-line board and 18 stations; the latter, 2 trunks, a 10-line board and 19 stations. These boards displace two independent intercommunicating systems.

New Castle District. There is a Bell patron in this district who is strong for the use of the term "Public Station" instead of the old-fashioned designation "Pay Station." This is why: The patron was indebted to a Kittaning restaurant keeper to the extent of one dollar. One day while in New Castle, the Kittaning man dropped into the real estate office in which the debtor was employed.

"Oh, I'll send you the money on Saturday night," was the promise extracted from the New Castle man.

When Saturday night came around the New Castle one had what appeared to be a happy thought. Stepping to the nearest public station, he called up the proprietor of the Kittaning lunch room.

"Here's two quarters of that money I owe you and there's the rest," shouted the man who called up, as he dropped four quarters.

The toll operator heard the money drop, but before she could explain that the transaction was somewhat irregular the patron had hung up the receiver. A traffic representative called on the real estate man and explained the impossibility of transmitting coins by telephone.

"Well, I tried to pay up, and I've got a witness," replied the patron. So I guess that Kittaning fellow ought to be satisfied for a little while at any rate."

A construction crew near New Castle while setting some poles were told by a farmer to get out. However, the men had right-of-way papers which they showed to the farmer and refused to leave the field. Without further comment the farmer walked away, and in a few moments was seen turning a bull into this same field. The bull pawed the earth, and looking around suddenly spied the men. With a snort and bellow he started for them. The farmer shouted to the telephone men, "Show him the papers." The crew beat a hasty retreat.

Local Manager McCune, of Rochester, Pa., has closed a contract with the Grand Hotel, Beaver Falls, Pa., for a Private Branch Exchange of 26 stations and 2 trunks. HARPER.

Uniontown District. Two new local positions have been added to the board at Charleroi in order to accommodate new business.

The erection of the company's new building at Clarksburg is progressing rapidly, the steel foundation of the first floor having been completed.

Friday evening, September 15, seven sections of the cable on the McClellandtown road at Uniontown pulled from the cable clips, broke in two places, and fell to the ground. Thirty-five stations were put out of service. At the end of an hour the cable was back in place. The trouble was cleared in a very short time.

Harry Beeson, proprietor of the West End Theatre, at Uniontown, played host to some twenty or more local operators on September 20. The play was "Roanoke." CAHOON.



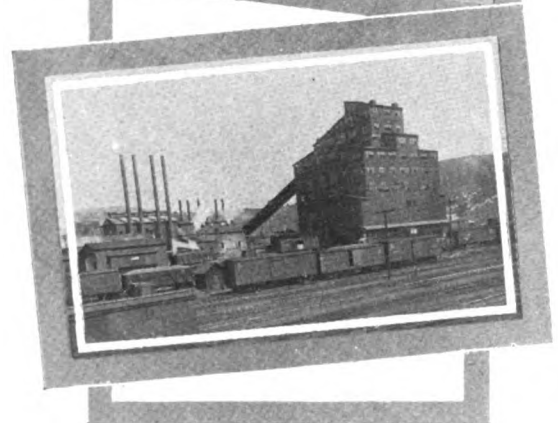
McKeesport Repeats

While so much attention is being given to telephone displays in the windows of subscribers, there remains much unused space of great value in the windows of the various commercial offices.

In a recent issue, a photograph showed how the McKeesport, Pa., Local Manager was using his window space to good advantage. The latest display in this particular window had for its subject the Bell directories. How the subject was brought out is shown in the photograph.



Three Street Scenes and a Large Coal Breaker at Carbondale, Pa.



Carbondale, Pennsylvania

Carbondale, Lackawanna County, is situated in the northeastern part of Pennsylvania, at the extreme northern end of the anthracite coal fields. It is the oldest city in the hard coal region and has the distinction of being the fourth oldest city in the Keystone State.

The Delaware & Hudson Company opened the first underground coal mine in Carbondale in 1829, and the first car of coal was shipped October 7, 1829.

Carbondale was named by the famous novelist and historian, Washington Irving, who became interested in the enterprises projected by the Delaware & Hudson Company, and for some years was one of its board of managers.

In August, 1829, just after the Delaware & Hudson Company completed its railroad to Honesdale, some freight for that company came over the road marked "The Delaware & Hudson Company, Carbondale, Penna." This was the first knowledge the residents had of the name of the new town. It was so appropriate that it met with universal approval, and when in after years it became known that it was the suggestion of Washington Irving, there was all the more reason for regarding it with satisfaction.

In 1851 the village of Carbondale had a population of 5,000 inhabitants and was incorporated a city. The 1910 census gives Carbondale a population of 17,040, and an additional 10,000 inhabitants within a radius of two miles, thus making Carbondale a city of fair size.

Carbondale is a railroad centre with three steam roads—the Delaware & Hudson Railroad Company, the Erie Railroad Company and the New

York, Ontario and Western Railroad Company. Fifty-eight passenger trains enter and leave the city daily. Its shipping facilities, just referred to, are equal to those of any interior city. The local electric lighting and gas plants are of modern and elaborate type. The water supply is of exceptional quality and plentiful. There are twenty-nine coal mines in operation located outside of the business and residential section of the city.

There are at Carbondale twenty-six manufacturing industries, nine churches and two chapels, one public and one private hospital, and eleven public and two private schools with an enrollment of over four thousand pupils.

The central portion of the city is not undermined and deeds for property in the business sections are made without the coal reservation clause. In the majority of towns in the anthracite belt property is sold subject to the right to undermine it for coal or other ore.

In 1877 the telephone was first introduced in Carbondale by Richard O'Brien, then Assistant Superintendent of the Western Union Telegraph Company at Scranton, who erected a private line plant to serve six stations for Mr. Hendricks, founder of the Hendricks Manufacturing Company. This was prior to the time exchange service came into use, and at that time the Western Union Telegraph Company and The Bell Telephone Company were strong competitors.

When the fight was over, and The Bell Telephone Company secured exclusive telephonic control, Theodore N. Vail, then General Manager, selected Mr. O'Brien as the right man to develop the business in Scranton and surrounding towns. The Scranton Bell Telephone Company soon had exchanges in Scranton, Pittston, Carbondale and Honesdale, connected by substantially built trunk lines.

Within the past one and one-half years the telephone development in Carbondale, Pa., has exceeded all previous years. In January, 1910, there were 600 stations served from the Carbondale central office, and in December, of the same year, our Company was serving 1,170 stations—a ninety-five per cent. gain within the year. There are twice as many residence as there are business stations.

Organization Changes

Name.	Position	Location
W. G. Lewis	Junior District Mgr. to Chief Clerk	Commercial to Traffic
H. T. Eastwick	Chief Clerk, Contract Mgr. to Chief Clerk, Div. Mgr.	Philadelphia
E. Umstead	Accountant to Special Agent	Pittsburgh
L. S. Will	Salesman to Local Manager	Pittsburgh
T. H. Martin	Salesman to Supervising Salesman	Pittsburgh

Vacationists "Use the Bell"

"It would be hard to lose the Bell even if one wanted to," said an employee of this company the other day.

This particular employee had just returned from a vacation trip that included a run through western New York.

"I was struck particularly with its prominence in railroading," he explained. "At the station a great many travelers displayed envelopes that had been delivered with tickets to offices and residences in response to telephone calls. I had taken my seat on the train and was gazing absently at a Bell desk set which awaited use on the little writing desk in one corner of the car. My gazing was interrupted by a young woman, who rushed to the telephone. She called a number.

"Hello, Mary—the Beavers tell me their cottage is to be right next to ours at Chautauqua. They have a new car. Just send on my polo coat, veils and such things, so I won't have to pass up anything in the line of motor invitations."

"The next day Harry N. Atwood flew from Buffalo to Lyons. He had been looked for in those parts on Saturday, and everyone with a mind bordering on the inquisitive and with an abode near the New York Central Railroad spent most of the afternoon using the Bell. The Associated Press had anticipated Atwood throughout his flight, and most of the anticipation was accomplished with the aid of Bell wires. The increase in traffic was very large all along the line. For example, on Sunday afternoon, August 20, the Buffalo bureau of the Associated Press telephoned the news that Atwood had started to its Batavian correspondent. Upon receipt of the message, the village fire whistle was blown. Inhabitants flocked to supposed points of vantage, and some people had a ten minute view of the aviator. But the majority of them couldn't locate the aeroplane. In order to make sure that chances to see the flyer were not being squandered on account of indefinite information, everyone rushed to a telephone. A 25 per cent. increase in traffic took place instantly at the local exchange."

Just a few days later this Bell employee went into camp on the edge of a small lake. Of course, a few things, such as salt, bathing suits and other incidentals were forgotten. So the rural line running around the lake was put into service. One incident seriously involved the chef of a nearby hotel. This man ran amuck for a distance of five miles and then jumped into the lake. The tremendous shock made a physician's attention necessary. The Bell came to the rescue, and a doctor, after traveling for eight miles in his motor of the one-lung variety, produced a pint of "shock absorber" that quickened the circulation of the half-drowned chef.

On the return trip the locomotive blew out a cylinder head. The telegraph service on that particular branch had shut down for the night. One passenger offered to walk to the next town for help and another said he would go to the nearest farmhouse and call the telephone that was nearest to the roundhouse. The second suggestion was used, and within two hours a relief engine came lumbering over the rails, picked up the train and jerked it over the remainder of the run. A few months ago a similar disintegration took place and the crew remained stuck until midnight, while the passengers walked to a farmhouse and bunked for the night.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

OCTOBER 15, 1911

NO. 20

Seeing Gettysburg

An Unusual Method of Viewing the Famous Battlefield

“CARRIAGE for the Battlefield!” “Here you are, sir! Carriage?” “Carriage!”

That's about the way the carriage drivers greet you at the railway station in Gettysburg, Pennsylvania—only more so. Tenors, baritones, basses—every sort of voice imaginable joins in the big clashing chorus and insists upon your patronage. Each man in the struggling line-up insists that he is the one reliable battlefield guide in the place, the very person you need to show you the field.

Talk about the chaos that greets the rural visitor to New York City! It has a worthy rival in the scene at Gettysburg, the small town near the Maryland line that was the scene of the final decisive battle of “the late unpleasantness.” Frankly, it is rather disconcerting, even to the confirmed urbanite, when first he visits the town, and especially so if that urbanite be a modest, well-meaning telephone man.

If you ever get a chance, provided you've never been there, it will pay you to go to Gettysburg one of these crisp autumn mornings. Travel light. Take nothing but a pair of field glasses. If you mean to follow the mode of travel that I should like to suggest, you will need nothing else.

When you alight from the morning train at either of the town's railway stations, you find a scene that at once suggests your own first visit to New York or to any other metropolis. Almost before you realize it, you are the center of a frenzied crowd of hacksters. They're very like the metropolitan variety of cabbies. They wear the same lined faces, seasoned by weather and an alliterative, but alcoholic, beverage. They make the same insistent demands on your attention. Daily they fight their own little battle of Gettysburg—laying siege to the credulity and purse strings of history-seeking citizens.

(Continued on page 5)

The Austin, Pa., Flood.

What Blue Bell Employees Did in Emergency



Pennsylvania College's Historic Dormitory. During the Battle of Gettysburg the Confederates Used It as an Emergency Hospital

AUSTIN, a paper and milling town of 3,000 population in Potter County, Pennsylvania, was swept out of existence at about 2.20 P.M. Saturday, September 30. The bursting of a concrete dam as a result of excess water from heavy rains caused 400,000,000 gallons of water to rush over the town and on down the valley almost without warning. The loss of property has been estimated at \$4,000,000, and of life variously at between 100 and 150 people.

A few years ago the site recently occupied by part of the town was a river bed. The Bayless Pulp and Paper Mill, one of the chief industries of the town, constructed the concrete dam across Freeman's Run, thus supplying water power and providing additional space in the Sinnemahoning valley for the construction of buildings. The dam was 530 feet long,

49 feet high and at the base 32 feet thick.

For sometime it is said that there had been rumors that the dam was not entirely safe. Within two years it had slid on its foundations about 18 inches, so reports say. The pulp mill, which employed 500 people, had recently assigned one man to inspect the dam at frequent intervals and make reports concerning it. A man who was gazing at the dam at the time noticed small leaks and as he continued to look the break came. Six great blocks of concrete were thrown out of position, one after another. One of them was carried over fifty feet by the pressure.

Due to the doubtful strength of the dam, there was a general understanding that a continual whistle from the Goodyear Lumber Mills in Austin would notify the people of a break, while an intermittent whistle would indicate a fire.

Our operator on duty at the time, Miss Kathleen V. Lyons, notified the town by setting the

Telephone Pioneers of America

The organization meeting of this association will be held in Boston, Mass., November 2, 3 and 4. The association now has 400 members, including eleven women who entered the service in 1882 and 1883. The list now shows three who began in 1875 and twenty-five in 1877. The maximum number registered in any one year is forty-eight, which was in 1879.

Telegraph and Telephone Age is authority for the statement that a recent applicant for admission in the association is F. W. Harrington, a well-known old-time electrical man who helped in the work of manufacturing the original Bell instruments in Boston in 1871.

Members who attend the convention in Boston are requested to bring anything relating to the early history of the business which may be of interest to the other pioneers.

Digitized by Google (Continued on page 10)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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F. L. SPALDING, Second Vice-President and General Manager

W. S. FERSOL, Secretary

WALTER BROWN, General Auditor

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Managing Editor, E. E. HAVENS, 1280 Arch Street, Philadelphia,
to whom all communications should be addressed

SUBSCRIPTION PRICE:

To employees of the above Companies - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII OCTOBER 15, 1911 No. 20

Company's Appreciation

REPEATED instances of prompt and efficient brain work, coupled with immediate and decisive action, have so become the order of the day in almost every sphere of work that there is perhaps a general tendency to overlook them. That inestimable training alone, which experience gives, makes every employee more competent as his service continues—and it becomes almost second nature to do his or her part toward maintaining and improving the goods or service which the employing company is furnishing.

When crews on passenger and freight ships and trains carry people and goods safely to their destination; when the United States post office officials and subordinates dispatch countless pieces of mail and merchandise with practically no loss; when badged officers and their associates in the departments of safety, everywhere, unceasingly maintain order; when telephone and telegraph people aid unfailingly in the electrical transmission of speech; when thousands of others in as many different public interests each does his part as well, the attention of the public that is being served is too infrequently called to the fact. Truly does it seem to require some unusual interruption, with the attendant mental and physical effort to restore service, to elicit deserved applause.

And when one's part in furnishing telephone service results in the saving of not one but many lives, every other employee who takes time to consider should be and is proud of the fact that he or she belongs to an organization which boasts of such employes.

The Austin, Pa., disaster is a very late example of what our telephone employees can and do accomplish in the face of fearful odds. When Miss Kathleen V. Lyons, with the rush of water and wreckage

sounding in her ears, stuck to her post and displayed that presence of mind and consummate courage of which we have read, not only did the entire nation applaud, but particularly did the company by which she was employed and her fellow-workers experience an even greater sense of gratification and pride.

Moreover, the logical way in which she called first the Pulp Mill (the nearest industry to the dam), and then the Goodyear Company (the recognized signal station) in Austin, evidenced cool-headedness far beyond her years. When she telephoned the young man who warned the people at Costello of the breaking of the dam, little did she realize how much that brief message meant to them. Costello was but three miles down the valley. We say "was" advisedly, for now the town as it was is only a memory. The messages which Miss Lyons was able to send before communication was cut off reduced the loss of life in that town of several hundred people to two—whereas Austin, with less warning and nearer the reservoir, sustained a loss estimated at over a hundred people.

What the other departments did and how closely they have co-worked in re-establishing service can best be appreciated by the fact that within forty-five minutes after communication was interrupted a new station had been cut in on a toll trunk and Harrisburg had been notified. The next night (Sunday) an emergency switchboard from Harrisburg had been transported, set up and cut into service, and a number of public telephones were in working order handling the enormous traffic.

The act of Miss Lyons has established the significance of the telephone and loyalty of its operator to people everywhere. It has its parallel in that long-to-be-remembered "C. Q. D." which John Binns, on that fateful morning of January, 1909, flashed to the passing steamers and to the shore.

Further, those Plant and other employees who disregarded personal comfort and forgot rest that the public might be kept in touch with the devastated district, prove beyond question the high type of men and women that exists in the telephone business. An outsider, unfamiliar with this kind of devotion to duty, might be surprised that so many employees in various departments should act instantly and in concert so fittingly and to the public's interests, as it has been expressed, "practically without supervision."

Then, too, those at distant points were fully informed as to what was needed and equally well prepared to do their part toward relief. The holding of an express train, summoning of employees from

church, and the pressing into service of the wife of one of the company's officers, are only examples of further proof of the point.

It is at not infrequent intervals that necessity for such bravery and instant action arises, and in no case has such demand in our organization met with disappointment. That the Company's officials and other employees are proud of these repetitions of concerted achievement has often been said. That it shows with what intelligence and willingness, as well as with determination and speed its men and women act, will always be a source of satisfaction to Blue Bell employees everywhere.

A Good Guide

From the Savings Journal.

A Cornell graduate, an electrical engineer, was killed in an accident while following his profession. Among his papers, after his death, was found this statement of what he had set himself to be and do in life. It was headed "My Guide" and it ran thus:

"To respect my country, my profession and myself. To be honest and fair with my fellow-men, as I expect them to be honest and square with me. To be a loyal citizen of the United States of America.

"To remember that success lies within myself, in my own brains, my own ambition, my own courage and determination. To expect difficulties and force my way through them. To turn hard experience into capital for future struggles.

"To believe in my proposition heart and soul. To carry an air of optimism in the presence of those I meet. To dispel ill temper with cheerfulness, kill doubts with a strong conviction and reduce active friction by an agreeable personality.

"To make a study of my business. To know my profession in every detail. To mix brains with my efforts and use system and method in my work. To find time to do every needful thing by never letting time find me doing nothing. To make every hour bring me dividends in increased knowledge.

"To keep my future unmortgaged with debts. To save as well as to earn. To avoid expensive amusements until I can afford them. To steer clear of dissipation, and guard my health of body and peace of mind as a most precious stock in trade.

"Finally, to take a good grip on the joys of life and to play the game like a man. To fight against nothing so hard as against my own weaknesses, and to endeavor to grow in strength as a gentleman."

Philadelphia Division
W. RITCHIE, Division Correspondent

Philadelphia District. During the recent primary election in Philadelphia the several newspapers showed their appreciation of the Bell service by having the following stations especially installed to give election returns to the public:

North American, 25 Direct Lines and Stations.

Inquirer, 30 Stations.

Philadelphia Press, 18 Stations.

Public Ledger, 15 Stations.

Evening Times, 15 Stations.

Philadelphia Record, 10 Stations.

Following the consolidation of several of the charitable societies in Philadelphia, a new two-position switchboard and 60 stations have been installed in their headquarters at No. 415 S. 15th Street.

The following is the comment of a subscriber on the "Acknowledgments" which the Central District Office has been returning with the receipted bills:

"Such a thoughtful and helpful suggestion is typical of the sagacious business management of the Bell, and a word of appreciation now and then from subscribers is a duty they owe in the general scheme of co-operation."

In addition to their already comprehensive Bell service, the Union League Club, Broad and Sansom Streets, Philadelphia, has installed several more stations, to be placed in the retiring room of the new women's restaurants, opened on October 2, 1911.

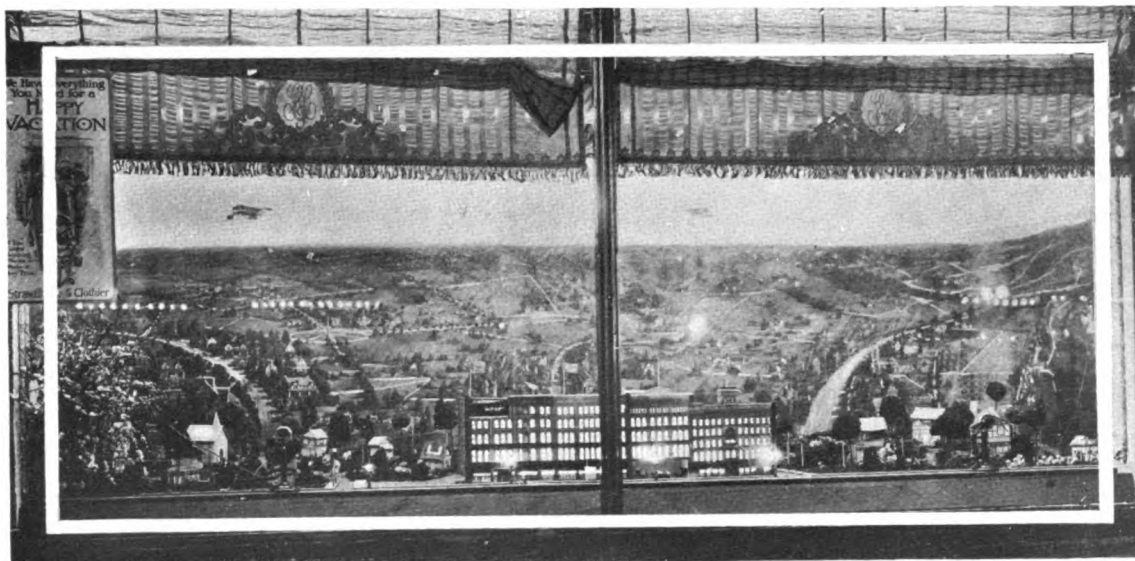
Applications have been signed for 120 new stations to be located in the new annex of the St. James Hotel, 13th and Walnut Streets, Philadelphia. Special equipment is being used, and the work will conform to the interior fittings of each room.

DREW.

By the addition of another story to the building of the Preston Central Office, at 10 North Preston Street, provision has been made for the accommodation of what will be known as the "Baring Central Office." The improvement is the result of a study made by our Engineering Department with the view to relieving the congestion existing now on the Preston board, and at the same time taking care of the growth of business in that part of the city adjacent to and now fed by the Preston, Belmont and Woodland Exchanges for a period of five years.

The original date for the opening of the new exchange was November first, but owing to change in the schedule the twenty-first of October has been set as the date on which the cutover from Preston is to be made. In consequence, the men are working day and night to be in readiness by that date. The new board will be of the same size as the Preston one—4900 lines. For the present, however, 3500 meet the requirements. There will be 23 "A" positions and 8 "B" positions. Twenty-five hundred Preston subscribers are to be cut over to the Baring board. These will represent those subscribers having four-party lines.

On account of the annual races held under the auspices of the Quaker City Motor Club in Fairmount Park, Philadelphia, telephone traffic on Saturday morning, October 7, was at peak heights. The continued rain of the night before had left the track in a doubtful condition, and it was not until the officials found time to go over the course that a decision as to the fitness of holding the race could be determined. In the meantime thousands of anxious people from Philadelphia and nearby places were flooding



Window display of Strawbridge & Clothier's Department Store, Philadelphia, calling attention to the part that the telephone plays in obtaining orders from suburban points.

Walnut 750 (*North American* Information Bureau) with questions as to whether or not the race would be held. At 10 o'clock it was announced that the races would not be held that day, and thousands of questioners were informed as they called Walnut 750 again. It was said by some of the local traffic men that the load was heavier than any previous time in their memory, and the battery consumption in some of the offices verified their statement.

THE BELL TELEPHONE CO.

Gentlemen:

I want to thank you for your promptness in connecting my telephone. While in my city home last Thursday and Friday, I do not know what I should have done without it. I have returned here again, but expect to return to my city home within a very few days.

Thanking you, I am,

Very cordially yours,

October first.

Mrs. _____

The Short Period Service

Appreciating the needs of the business man for regular and efficient telephone service between the home office and branches, the American Telephone & Telegraph Company devised a plan for furnishing regular daily periods of service at reduced rates, with all the features of the private wire contract for all day service.

That the plan has been exceptionally interesting to the larger users of long distance service is evidenced by the fact that numbers of them have adopted the "Short Period Service," as it is called, and find that in addition to decreasing the cost, it systematizes the telephone end of their business.

The periods offered subscribers are from 30 minutes daily up to the full business day of 10 hours, and a recent new departure occasioned by the demand, is the dividing of a 30-minute period into two 15-minute periods, thus enabling a subscriber to contract for 15 minutes' service both in the morning and afternoon.

The Short Period contract must be made for some period before 10.00 o'clock in the morning, after 4.00 o'clock in the afternoon or during the noon hour.

The price varies for different periods and different distances, but is attractive because it is a monthly regular service, and has a stated time price for traffic that can be handled more economically than can emergency messages.

The contract provides for an absolutely private wire and all of the operating is done by the subscriber. There is no placing of the call with the operator, no waiting for the connection to be made and no three-minute rate. The wire is there at the stated period, placed at the disposal of the subscriber for instantaneous communication with his branch office.

Sending Money by Messenger Service

The reduction of the annual dues of The Philadelphia Telephone Society to fifty cents has caused a large number of payments to be made by messenger. Inasmuch as many of these payments are made in coin enclosed in envelopes together with the bills, it has been stated by the Traffic Department that temptation is placed before the messengers who carry our interdepartment mail. It is, therefore, requested that the practice of sending money through our messenger service be discontinued.

Course in Telephone Practice

For the benefit of those who desire to broaden their knowledge of electricity which is involved in telephone practice, and to become more familiar with telephone equipment, The Drexel Institute, 32d and Chestnut Streets, Philadelphia, offers an evening course in telephony, beginning November first.

The primary work of instruction in connection with this course will be conducted with the assistance of employees of our companies.

A telephone course of more advanced character is being prepared, which is intended to deal with the underlying theories met with in telephone practice. Further information relative to this course can be obtained by applying to the Institute.

For many years past all Institute classes have included engineering courses of general character. Engineering courses are planned for men who have completed such work in mathematics and science as would be included in a first grade manual training high school, or who have received the necessary work of preparation in Institute evening classes. A large number of employees of The Bell Telephone Company of Pennsylvania and the A. T. & T. Company have been enrolled in these classes.

Atlantic Coast Division**J. R. ANDERSON, Division Correspondent**

Bridgeton District. Our new roomy offices on the first floor of the Pioneer Building have already proved especially attractive to the telephone-using public. Since the telegraph business became associated with us on October 1, the office force has been unusually busy. (For further information see particulars elsewhere in this issue.)

LORE.

Camden District. The New York Shipbuilding Company, one of Camden's largest industries, has signed a new private branch exchange application for 4 local trunks, 2 trunks to our Lombard (Philadelphia) central office, a private line to its President's office in Philadelphia, and 20,000 Philadelphia messages together with an increase of six local stations, making 88 in all.

Two miles of 60-pair cables between Gloucester City and Westville have just been re-clipped with 4,000 galvanized rings.

CROXTON.

Dover Sub-District. For five days recently, Delaware was without a Secretary of State, due to the death of the official holding that position. During this time there were a number of marriages postponed because the marriage licenses must bear the signature of the Secretary of State. One young woman in South Delaware was more enterprising than her other friends in distress. She called the Governor by telephone and as briefly as possible made him aware of her predicament. The Governor, being unmarried, fully realized what the situation meant and within an hour announcement was made of the appointment of a new Secretary of State with authority to execute the marriage licenses.

PRINCE.

Doylestown District. Our Company obtained a number of rural line applications as a result of its display at the Bucks County Fair held at Perkasi, Pa., September 13-16, inclusive. The Western Electric Company furnished several types of equipment. A novel feature of the exhibit and one that attracted very much attention, was the placing of a small blackboard on which was posted each day the weather forecast as furnished by the Western Union Telegraph Company, and the current prices of farm products.

The value of rural line telephone service in emergencies was again demonstrated at 1 A. M., September 17, when the barn of a subscriber of the Pine Run Rural Telephone Company was destroyed by fire. All of the stock and farming implements were saved. It was, also, by this same telephone that a neighbor notified the subscriber that his farm was on fire.

HENNESSY.

Norristown District. A Norristown hotel recently quarantined, had only automatic public telephone service, and the proprietor asked that flat service be installed promptly. The order was signed at 1 o'clock for main station and extension set and was completed at 2.45. The proprietor stated to our salesman, afterward, that of all the different concerns with whom he had business, and from whom he required quick action, The Bell Telephone Company was far ahead for the rapidity with which it completed his installation.

BEERER.

Trenton District. A prospective subscriber called at the District Manager's office to be advised as to rates for telephone service in his residence in Princeton, N. J.

The clerk answering his inquiries, explained to the man the different rates, mentioning "direct," "two-party" and "four-party" line service.

At first, he could not understand what we meant by two or four-party line service, as he

said he was a single man, and the only one to use the telephone; therefore, he would not require a four-party line.

GARWOOD.

Joint Telephone-Telegraph Office Opened

The first joint telephone-telegraph office in the New Jersey territory of The Delaware and Atlantic Telegraph and Telephone Company's territory, and, in fact, the first joint office with the Morse equipment in our entire territory, was opened October 1, in the offices recently taken by our Company in the Pioneer Building at Bridgeton.

The telegraph instruments and equipment were installed Saturday, September 30, and are all of the latest type in keeping with the other office fittings.

The former Western Union office on East Commerce street is now closed, and the removal to the Pioneer Building on Laurel street is welcomed by the public. The cutover was made Sunday, October 1, the telegraph office at the former location being open from 9 until 10 A. M., and at the present location from 5 to 6 P. M.

It is now possible for subscribers in that vicinity to telephone telegrams or cablegrams to the local business office or to send money by telegraph or to obtain Western Union messenger service by applying at this office exactly as at any other regular telegraph office.

Baltimore Division**J. R. BROHAWN, Division Correspondent**

The following letter has been received by the Baltimore Cashier:

Enclosed please find check for bill dated September 1, 1911.

Your service is to be admired, and I have every reason to be proud of the prompt way in which your employees extend their courtesies toward us.

Cumberland District. During the month of August the Manager of the Cumberland District obtained 12 private branch exchange applications, totalling 82 stations, at an annual rental of \$1496.

DODGE.

Hagerstown District. The Agent at Frederick, Md., has negotiated a Plan "A" contract with the Emmittsburg Pioneer Telephone Company for 8 stations. This line will connect with the Emmittsburg exchange. An opposition company from southern Pennsylvania was after this company and it was only through a hard fight that our representative won out.

The Frederick Agent's idea of "keeping everlastingly at it" is landing business.

A Chase automobile recently was sent to the Plant department at Frederick. The Frederick employees are quite proud of the vehicle; they now are able to cover ground much more quickly than before. It does the work of two teams a day.

Hagerstown received a Chase automobile some time ago.

REEDER.

A Baltimore Suggestion.

The recently issued announcement cards of The Baltimore Telephone Society contain a departure that might well be followed by other societies throughout the Companies' territory. In the lower left hand corner, preceded by "P. S.," appears this significant reminder: "Items of interest for THE TELEPHONE NEWS should be sent to the Secretary."

Washington Division**R. G. HUNT, Division Correspondent**

The Washington commercial office is now in the very midst of its busy season. Conditions in Washington are perhaps unique for the whole territory of the associated companies in so far as the in and out curve is concerned. The high-water mark comes in October and the low in June, progressing from an average low gross of about 500 stations in, per month, to an average high gross of approximately 1700 stations in, per month. On Saturday, September 30, directory closing day, 61 applications for new service were secured, incorporating an aggregate of about 100 stations for the day.

One of our subscribers, an Italian, requested several months ago that his telephone be moved to an adjoining house, but objected to paying the established removal charge. Under the circumstances the work could not be done for him, but as the bills were paid each month, the station was allowed to remain in service. A few days ago he came into the office about another matter. Our salesman remembering the other occurrence, asked him what he had done about it. He said, "I no got to pay six dolla. I cut hole in wall and use heem anyhow." It appears that this was an actual fact. The man had cut a hole in the wall so that the instrument might be passed through it, without necessitating a move of the bell box.

A telephone was installed during the past summer at Camp Good Will, one of Washington's worthiest charitable institutions. The purpose of the institution is to provide a week or two vacation for poor children, and the results it has obtained have been most successful. The following letter was recently received from the treasurer of the institution:

My Dear Sirs: I beg to advise you that Camp Good Will has closed for this season, and the telephone can be removed.

On behalf of the Summer Outings Committee I want to again extend thanks to The Chesapeake and Potomac Telephone Company for the great service and courtesies extended to us this summer.

To have been without the telephone would have been a hardship in conducting the Camp this summer.

A private branch exchange system has just been installed in the Professional building on Connecticut avenue, the subscribers being two prominent local physicians. The building is divided up into suites like those of an apartment house, and the tenantry is restricted absolutely to practicing physicians. The management, in advertising the office suites, has especially featured the telephone facilities provided.

The proposition is one that is calculated to appeal to a great many physicians. The handling of incoming telephone calls, while the physician is out of his office often presents itself as a problem. Its solution is usually accomplished only by employing an attendant for that purpose. This is an expense which amounts to a hardship in a great many cases. At the Professional building the problem is solved at a minimum of expense to the physician tenants. Intelligent operators will be employed and drilled carefully in the handling of incoming calls in the doctor's absence. Memoranda will be written giving the name of the calling party, his telephone number, address and the message, and these will be presented to the physician immediately upon his return.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. Several days ago a Bethlehem rural subscriber called the business office and said that he had been unable to reach a certain subscriber at Easton. The Commercial representative investigated, and, when questioned further, informed the caller that the wanted subscriber was disconnected for non-payment. The caller's object was to purchase a quarter of beef and when he learned the cause of disconnection he gave his order to a Bethlehem subscriber instead.

The Plant Department has completed the installation of a 200-pair house cable which will serve the subscribers in the Allentown National Bank and Hunsicker Buildings at Allentown.

During September, applications were obtained for new and additional private branch exchange service in this district aggregating 7 trunks and 15 stations. Six subscribers will be benefited.

The Company's exhibit at the Allentown Fair was favorably commented upon by hundreds of visitors. The types of equipment shown are the No. 1 branch, the No. 2 (or intercommunicating system), the calculagraph, ordinary sub sets, several types of bells and some historic equipment. The public booths were well patronized.

Harrisburg District. The oil paintings, the originals from which our series of post cards were made, have for some time been on exhibit in the Company's local offices at Harrisburg. The

Star-Independent of September 26 contained a detailed description of these productions.

The Lindner Shoe Company, at Carlisle, was superseded from a four-party line and a direct line and extension to a cordless monitor switchboard with one trunk and 8 stations.

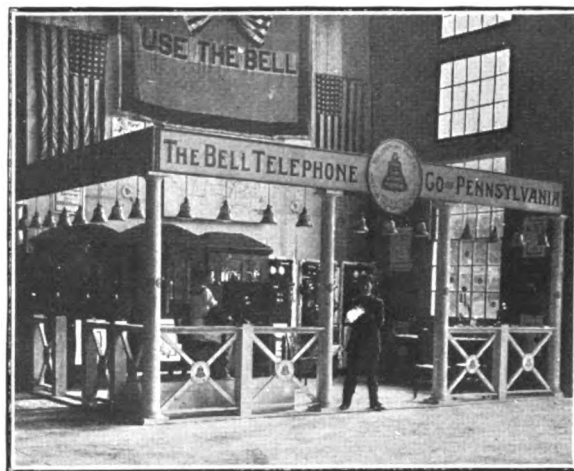


Exhibit at Allentown, Pa., Fair

NEW RURAL LINES.

Name	Connecting Exchange	No. of Stations
Blue Mountain.....	Harrisburg.....	7
Samples' Bridge.....	Mechanicsburg.....	5

SUPPLEMENTALS.

Name Exchange	Stations
Carlisle	1
Chambersburg	9

Dillsburg	2
Greencastle	1
Harrisburg	9
Mechanicsburg	10
Mercersburg	4
Mt. Holly	1
Newville	2
Shippensburg	2
Waynesboro	1

Total 42

Scranton District. A Carbondale subscriber came to the local business office to obtain further information about out-of-town messages covered by his bill. After this was attended to he gave our clerk the names of two people who used his telephone often. Later a salesman obtained two new applications as a result.

A New Foundland, Pa., man recently opened a large boarding house. In order to advertise the fact he invited to dinner the directors and other members of the Paupack Telephone Company, who had been holding a meeting in that vicinity. The Paupack Company is a Bell sub-license company with about 400 stations.

Williamsport District. At a special meeting of the stockholders of our Company, held September 28, The Bell Telephone Company of Pennsylvania voted to buy outright the Emporium Telephone Company, operating in the vicinity of Emporium, Cameron County, Pa. This action had been favorably voted on by the stockholders of that company. The Emporium Company has about 200 stations in service.

Seeing Gettysburg

(Continued from page 1)

Before you surrender to these common enemies, however, take this word of warning. There are two good ways of seeing the world. One of the old philosophers probably said it ages ago—usually that is the case—but just the same, there are two good methods. One is to ramble and globe trot to the very fag end of this mundane heap. The other—to stand comfortably still in one spot and let the whole world pass by. Sometimes the second course is undoubtedly the better. I think it is in this instance. So, before you accept the services of a guide, let me suggest that you consider an unusual plan for looking upon the glories of this place. I'll tell you how to do it:

First, close your ears to the cries of the cabbies. Press through them; and when you have reached the border of the crowd, look around you for a young man who wears a vivid green skull-cap. The direction may sound a trifle vague, but I assure you you will find such a person. In fact, it is more than likely that you will find a number of these green caps decorating the horizon. It is no mystery at all; they are merely Freshmen from the neighboring Pennsylvania College, doomed to wear this homely badge throughout their first year at the institution. The incoming trains seem to have a peculiar fascination for them during the first term of the collegiate year. The only plausible explanation is that they are homesick, and hope to see a familiar form step from the trains.

Be that as it may, don't hesitate a moment in calling on a Freshman to serve you. It is commonly understood that a Freshman is born to serve. The unwritten law about it is that the harder you work a Freshman the better man he becomes. Make up your mind to see as much as possible of this place in the day that is yours. Choose the Freshman that shows the fewest

symptoms of an utterly empty mind. Beckon him to you and talk to him something like this:

"Here you, Fresh! Take me up to the top of your college's cupola over there. I want to take a look at the battlefield. Do you get me?"

It is ten to one the young fellow "gets" you. By this time of the year Freshmen usually are well broken and well instructed in their various duties to humanity in general, and to their elders in particular.

Follow your guide. He will escort you, first, through a typical college campus; thence up to the entrance of the famous "Old Dorm" which is pictured on the front page of this issue of THE TELEPHONE NEWS. It is an especially historic old structure. During the battle that surged over these very grounds, it was used by the Confederate forces as an emergency hospital. Now it is the main attraction of the college.

As you wind your way up the dim, broad stairways, your ear will catch many little hints of student life. Guitars thrum and mandolins tinkle. Laughter and shouts ring out from behind closed doors. All the multitudinous noises of healthy young American manhood echo and re-echo through the timbered halls.

At last you reach a great unfinished loft, a place now sacred to the midnight escapades of roistering students. From here it is but a short climb to the cupola, which is your goal.

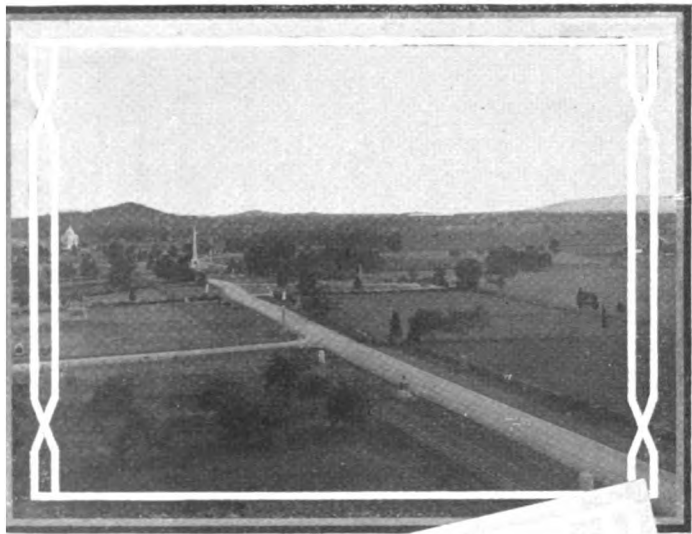
You mount with your guide to this breezy eminence, unsling your field glasses and prepare to learn something of this, one of the world's greatest battlefields. And while you're doing it, remember this: On the very spot you now tread, General Lee, the hero of the Confederate cause, was wont to take his stand almost 50 years ago, and from this well-adapted vantage point reconnoiter the conditions that confronted both the Northern and Southern armies.

Your companion should be able to tell you somewhat of the preliminaries of the battle. Or you may remember them yourself. How, for

instance, the Confederate authorities made up their minds, late in the spring of 1863, that they would invade the North. They hoped to overthrow the Federal government by this one supreme effort. At that time—about the first of June—Lee, with his magnificent army, was at Fredericksburg, Virginia, 160 miles south of Gettysburg. General Hooker, then in command of the Union army, was stationed directly across the Rappahannock River and between Lee and the approaches to Washington. During the month of June the Confederates made their historic dash northward. They had a day or two's start of the Federal commander. Their object was to give him the slip, and they almost succeeded in doing it. But on the 5th of June General Hooker discovered the Southern army's plan and immediately gave chase. The march led almost directly north, beyond the Blue Ridge, up the Shenandoah Valley and onward into Pennsylvania as far as Chambersburg. From here the Confederates planned to strike still farther northward towards the Susquehanna River. After a movement of this sort they meant to swing about and capture the Nation's capital city.

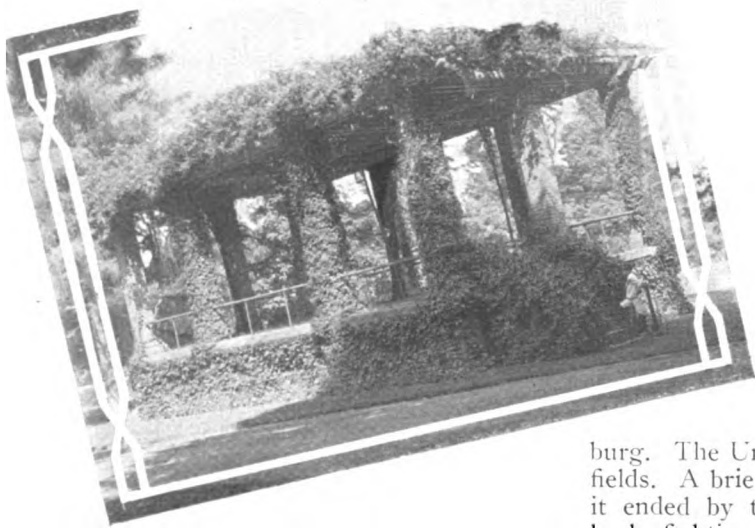
General Meade, a Pennsylvanian, succeeded General Hooker to the command of the Union army in the latter part of June, and he at once determined to force Lee to give battle. At this time he was many miles south of the Southern army, but by forced marches rapidly was catching up with it. About the 29th or 30th of June, Meade's advance guard reached Gettysburg. They occupied the town, and on hearing that the Confederates had turned from their dash through central Pennsylvania and were heading directly to that vicinity, they prepared for a conflict at this place.

The battle, as every American citizen should know, began on the morning of July 1, 1863. With your glasses pointed to the west, you can see the very spot where the first gun was fired.

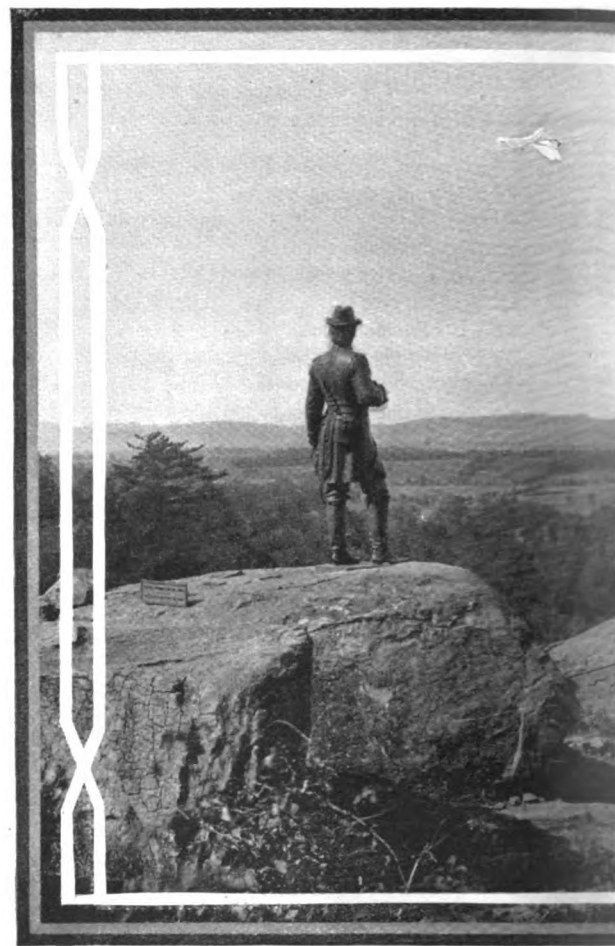


Left, Upper: General View of Central Part of Gettysburg Battle-Field.

Left, Lower: Open Air Rostrum in the National Cemetery from Which Many Famous Orators Have Spoken.



Centre: Little Round Top and the Bronze Statue of General Warren, the Federal Officer Who First Saw the Importance of This Point.



Seeing Gettysburg

(Continued)

One corps of the Confederate army was approaching Gettysburg from Chambersburg. A detachment of Federal pickets had advanced in his direction beyond the Lutheran Seminary buildings—which probably are in your present range of vision. A sharp skirmish took place and the pickets fell back to the main part of the

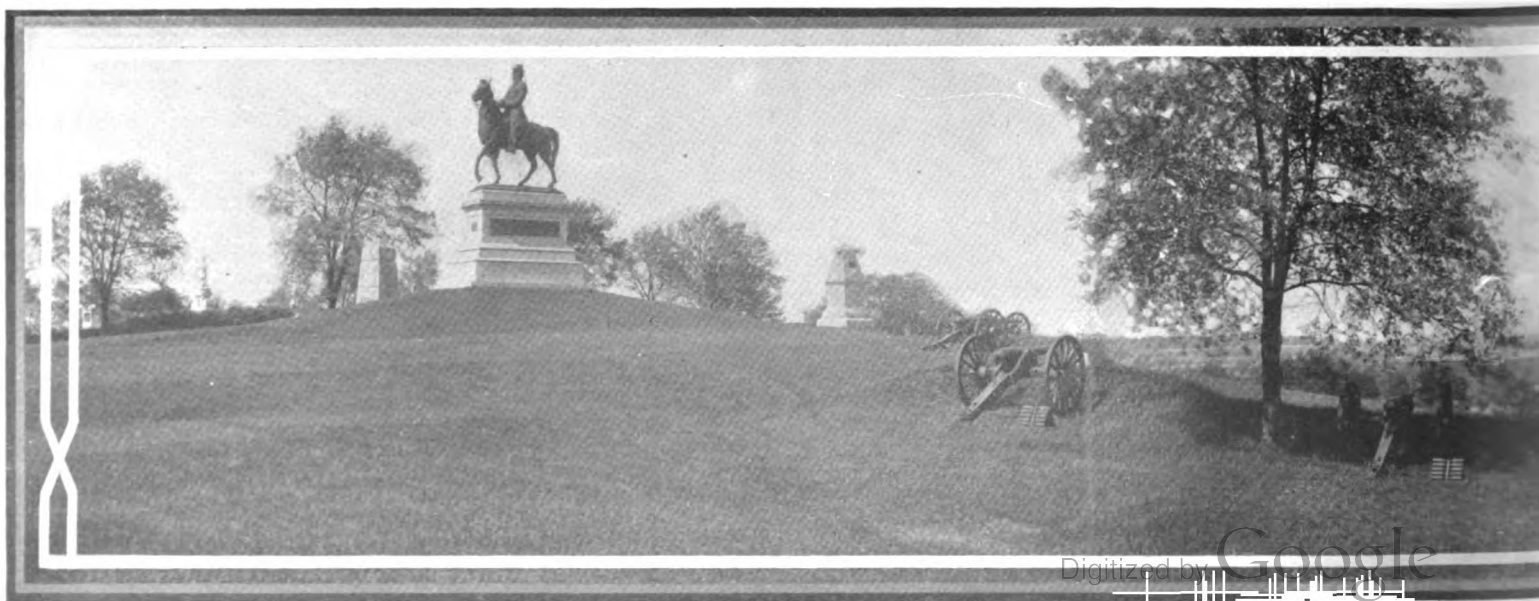
own. Turn to the north then, and look out over the broad, level fields in that direction. Here it was that some of the first severe fighting took place. Another large body of Confederates was approaching Gettysburg from the Susquehanna, more particularly from the vicinity of Harris-

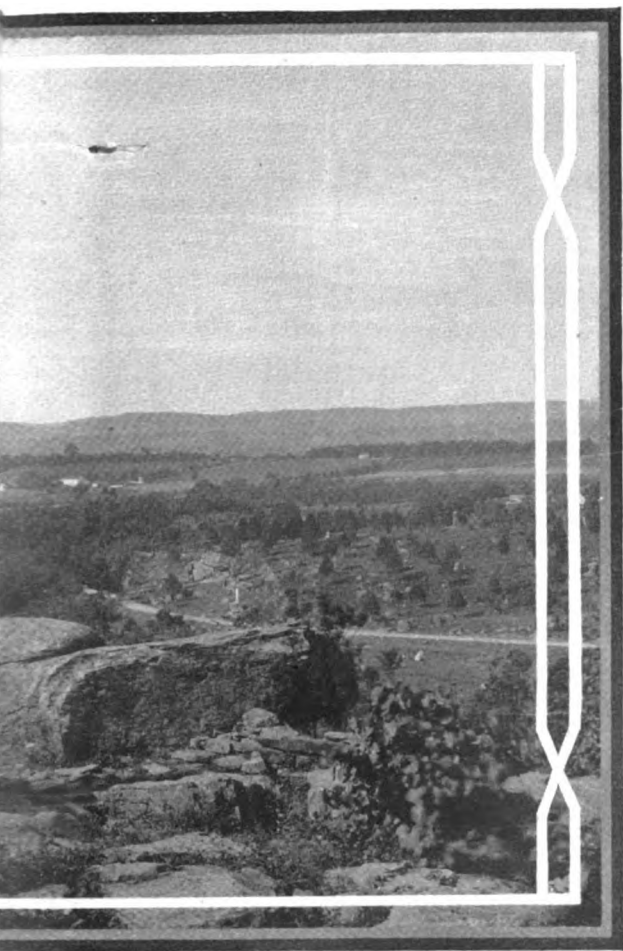
burg. The Union forces met them in these open fields. A brief but bitter conflict took place, and it ended by the Federals being forced to fall back, fighting as they retired. When the Confederates saw this first advantage gained they pressed in aggressively, and during the Federals' retreat through the town many soldiers became panic-stricken and were made prisoners in the streets of Gettysburg and on the roads leading back to Cemetery Hill, the position to which they were retiring.

Cemetery Hill, by the way, is a name supremely important in connection with the story of those sanguinary days—the 1st, 2d and 3d of July. It was the Federal army's strongest strategic point. By sweeping your glasses to the south you will gain a fairly comprehensive idea of the ground's contour. For one thing, you can scarcely help seeing how remarkably adapted was the stage setting for the great drama. To your

right, as you look southward, runs the long, low hill known as Seminary Ridge. Here it was that the Confederates drew up. To your left in the same direction lies Cemetery Ridge. The two ridges are parallel and almost identical in nature. Between them lies a beautifully leveled valley, one-half to three-quarters of a mile wide. Lee pinned his hopes to the natural advantages of Seminary Ridge; Meade, to those of Cemetery Hill and vicinity. The world now knows that the latter position proved the better.

It would be decidedly unwise to attempt to detail the affairs of the next two days. The smallest complete account of the battle I've seen numbered about 150 pages. Also, a good American citizen and a telephone employee should already know a great deal about this conflict. So content yourself with picking out with your glass the more striking points of interest that loom up on the horizon. Piece out the story with an unfettered fancy.



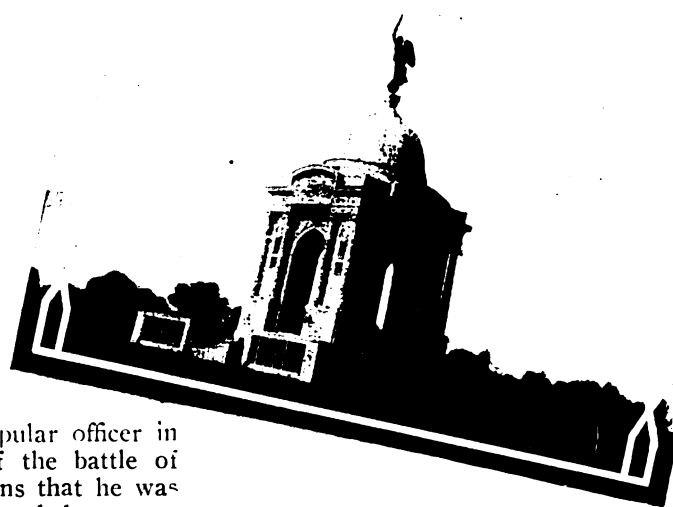


Right, Upper: View near the "High Water Mark" of the Rebellion.



Right, Lower: Pennsylvania's Splendid New Memorial. On Its Parapets is Recorded the Name of Every Man Who Participated in the Battle.

Panorama: View from East Cemetery' Hill. Up this Slope the "Louisiana Tigers" Made Their Famous Charge.



There are several things that should not be missed, either with your glasses or in your thoughts. First of all is the case of John Burns, the grand old man of Gettysburg. John Burns is the man who, dressed in outlandish attire, presented himself on the first day of the battle and stated that he was there to help gain a victory for the North. He was jeered and laughed at, but he insisted that he was fully able to take a part in the conflict, and finally he was allowed to remain. History tells us that when advised to fight in the woods because of the greater shelter there, he declined the offer and took his place with a line of skirmishers in the open fields. He was three times wounded in the first day's fight, but he lives to-day in Bret Harte's picturesque poem.

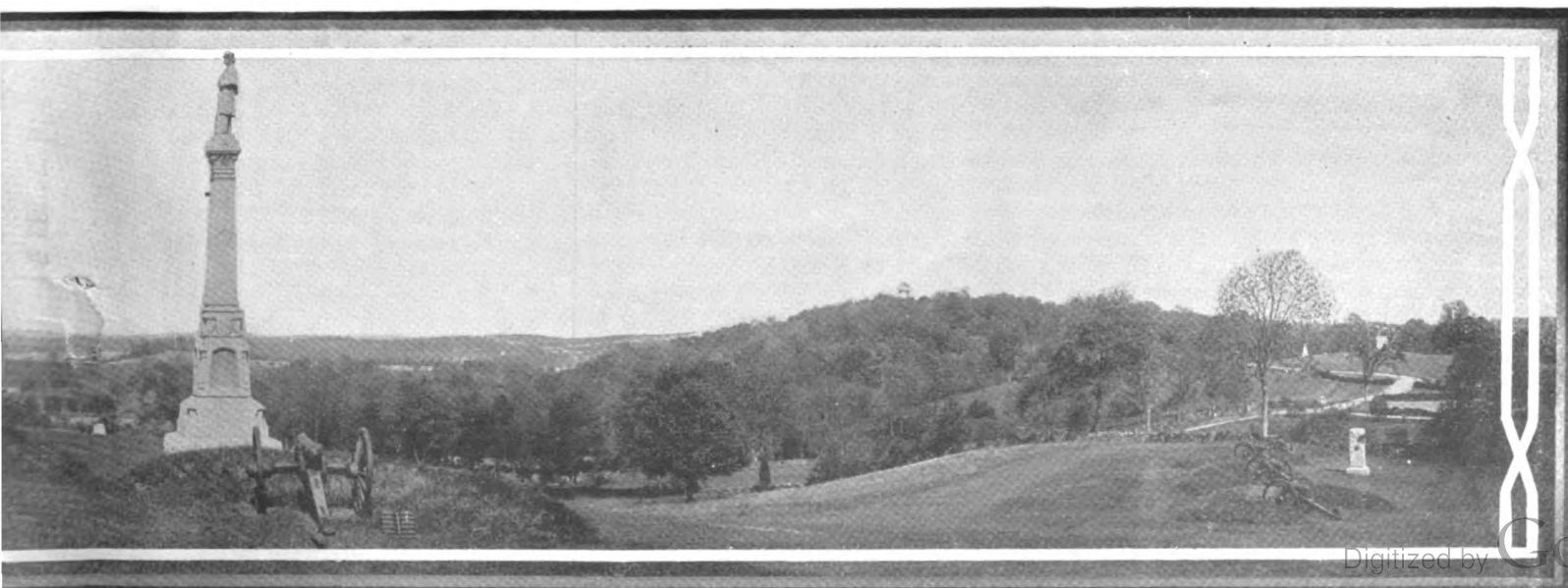
The pathetic figure of General Reynolds, another Pennsylvanian, also comes to mind. The splendid equestrian statue erected in his memory can easily be seen to the south. General Rey-

nolds was probably the most popular officer in the Union army at the time of the battle of Gettysburg. The sad fact remains that he was among the first to be mortally wounded.

One might continue indefinitely with incidents and anecdotes, but you who are fortunate enough to stand on the spot where Robert E. Lee once stood, fortunate enough to have the beautiful field stretch out in every direction before your eyes, should scarcely need further aid to your imagination. Stay right here as long as you please; there is no professional guide to hurry you. You may think of such glorious facts as:—"Pickett's Charge," "The Iron Brigade," "The Peach Orchard," "Devil's Den," "Little Round Top," "Big Round Top," "The Louisiana Tigers"—of these and dozens more.

Finally, when you descend, you can congratulate yourself on several things. You have not been dragged around 25 square miles of more or

less rugged country. You have not been ordered in and out of uncomfortable vehicles. Nor have you been forced to listen to the peroration of a leather-lunged individual who continually takes liberties—both with the facts in the case and with "English as she is spoke." You have not been urged to purchase one of the many bullets in circulation that are supposed to have killed one or another hero of this conflict. You have, however, constituted a select little audience of one—plus an aide—and before you have swept every figure and every incident of the splendid tragedy that here was enacted. You have "seen Gettysburg" in a manner that few people are sensible enough to utilize.



Pittsburgh Division

L. W. GRISWOLD, Division Correspondent

Pittsburgh District. Salesmen of the Pittsburgh District are holding very interesting meetings on alternate Fridays. These gatherings take place in the large class-room on the ninth floor of the Seventh avenue building.

On September 15 T. H. Martin, Supervising Salesman, Down Town District, read a paper on "The Difficulties Met by the Salesman and How to Overcome Them." That the paper contained many good thoughts was demonstrated by the arguments, opinions and discussions from a number of the 70 members who heard the speaker.

Another meeting was held on September 29, when F. A. Hoffman, a Down Town salesman, read a paper on "Changing from Obsolete to Standard Rates." This also was an unusually good paper and resulted in a lively discussion. Mr. Hoffman made clear the difference between the right and wrong methods of approaching the prospect. This led to strong emphasis being placed upon the necessity for following each subscriber's case and making certain that all obligations assumed by the Company are carried out promptly.

In Sewickley, Pa., the public library has adopted a novel means for renewing books. At the expiration of the initial loan a postal is sent to the borrower. On the card the library's Bell telephone number is conspicuous, as is also the phrase, "Books may be renewed by telephone."

Nine hundred twenty-two subscribers formerly served by the Turtle Creek and Wilmerding exchanges have been connected with a new common battery exchange known as "Valley." The territory served by "Valley" includes the great manufacturing concerns located at East Pittsburgh, East McKeesport, Turtle Creek and Wilmerding. Among these concerns are the Westinghouse plants.

The new board contains 8 positions with an ultimate capacity of 1600 lines.

Butler District. J. L. Stoop, who lives near Chicora, came into the Butler office recently to thank the Local Manager for persuading him to take the telephone at his farm, and stated that on September 27 his barn was struck by lightning and burned. By the use of the telephone he was able to call his neighbors in time to save his machinery and the adjoining buildings. He states that the savings would pay for the telephone service for many years to come.

G. H. Curtis, a druggist in Franklin, Pa., who recently published a pamphlet advocating the use of the telephone in connection with his business, is now advertising articles for sale at special prices "by telephone only." The Local Agent has placed a neat display of telephone equipment and signs in his window, which is attracting considerable attention, and incidentally teaching the other merchants the advantage of selling goods by telephone.

WARRICK.

New Castle District. On Sunday evening, October 1, the Neshannock river overflowed its banks, flooding the entire business section of New Castle, causing damage to the extent of \$100,000 or more. Service was interrupted for about 400 stations, but by 9 P. M. Tuesday all of them were in working order, despite the fact that water remained in a majority of the cellars. The flood came very unexpectedly. The Plant Chief left the office at 7.30 P. M., and at 9 o'clock he had to wade through the water to reach the building. During the height of the flood the local exchange board carried a tremen-

dous load, employees of the Traffic, Commercial and Plant Department being pressed into service as operators.

HARPER.

Uniontown District. The average telephone salesman of experience, at times, is somewhat of a trouble shooter. One of the Company's salesmen at Charleroi, Pa., believes he has discovered a new cause. Recently a rather elderly woman, who has for several years been a Bell subscriber, called this salesman into her house and said, a bit indignantly: "Why, I can't get Central to answer at all. I just stood at that telephone for nearly half an hour and not a soul answered me." Upon investigation, our representative saw on top of the instrument a pair of gold-rimmed spectacles short-circuiting the binding-posts. He explained the cause of the trouble and also the reason for the woman's inability to see the cause.

At Morgantown, W. Va., the commercial department has obtained a private branch exchange application that arouses somewhat of pride. It covers only 15 stations but Local Agent Dunning promises at least 35 before the expiration of the first contract year. Soon after the line orders were issued, 15 new applications for service were obtained as a direct result of this contract. Not a few of these applicants have been for years transferred from one prospect card to another with a mental note of "unconvincible."

Reciprocity as an international issue has been rather emphatically disapproved of, but reciprocity in the telephone business is still a very workable principle. A Charleroi salesman was canvassing a prospect whose business was the cleaning and pressing of suits. This business man still owed a balance on a final account. "Say," said the prospect finally. "If you will bring me a couple of suits to clean this week, I'll sign up and pay the old account." The salesman knew that well kept clothes were an asset in his business and did not hesitate.

CAHOON.

Wheeling District. Here is a report recently received by H. W. Wood, Traffic Supervisor, at Wheeling.

"E. R. Potts of the Moundsville Wharf boat recently had a telephone installed in his craft. He went to Parkersburg, W. Va., last evening for a ten days stay and took the telephone with him."

Mr. Wood who is known throughout the southwestern extremity of our territory as "Judge," is endeavoring to live up to his sub-title by correctly passing upon the question, "Is this a temporary or permanent disconnection?" If so, what would be an equitable charge for the use of the telephone during the time it was not in use?"

HEALEY.

New Bell Connections.

Hyndman, Bedford County, Pa., has recently been connected with the Bell system.

The exchange at Hyndman serves 41 telephones and connects by trunk line with Cumberland, Md. An estimate is now being prepared for a trunk line to connect with Bedford, Pa.

Hyndman borough has a population of 1164. It is situated at the head waters of the Potomac river near the Maryland line. Telephone connection is made with Buffalo Mills, Cooks Mills, Fossilville and Bard.

This connection is made as a result of the recent consolidation in Cumberland, Md., and will prove of great benefit both to the Bell interests and to the community concerned, as there has been for a long time a demand for Bell connection at Hyndman.

New Companies signed in the Pittsburgh Division:

Plan "A" Rural	Connects with	Stations
Dughill	Morgantown	7
Neshannock Falls	New Castle	7
Shady Glen	New Cumberland	8
Wetmore Township	Kane	7
McKinley Station	Kane	7
Pigeon Gap	Cambridge, O.,	6
West Side	Smethport, Pa.,	8
East Potato Creek	Smethport, Pa.,	9
Connecting Company	Exchange	
Rossiter Telephone Co.	Rossiter	40
		103

Telephone Societies

The Telephone Society of Pittsburgh.

F. H. Bethell, Vice-President of The New York Telephone Society and also Vice-President of The Bell Telephone Company of Penna. and Associated Cos., will be the speaker at the first regular meeting of The Telephone Society of Pittsburgh, to be held on the evening of October 27th. The meeting will be in the Carnegie Lecture Hall at the Schenley Park entrance of the Carnegie Institute.

On September 28, the following directors were elected for terms of two years: W. W. Bunton, Plant; J. A. Collette, Traffic; J. M. Griffith, Traffic; J. W. George, A. T. & T. Co.; C. E. Malley, Accounting; S. B. Ridge, Plant; F. K. Singer, Plant.

Directors whose terms expire during 1912 are the following: L. M. Dunn, W. E. Co.; Z. C. Gillespie, Commercial; L. W. Griswold, Commercial; B. F. Lloyd, Commercial; J. K. Martin, Plant; D. J. Murphy, Commercial; G. S. Reinohl, Commercial.

The following officers have been elected for the 1911-1912 season: President, S. B. Ridge; Vice-President, J. M. Griffith; Secretary, L. W. Griswold; Treasurer, C. E. Malley.

Transposition Club

Hotel Henry, Pittsburgh, October 17.

The Telephone Society of Washington

The twenty-ninth regular meeting and the first meeting of the 1911-12 season of The Telephone Society of Washington was held on Thursday evening, October 5, 1911.

An amendment to Article 2, Section No. 2 of the Constitution was offered by R. G. Hunt to be voted on at the next meeting.

Brief and interesting talks were given by the following:

- R. W. Prince—Planning of New York-Washington Toll Conduits.
- J. Beetham—Construction of New York-Washington Toll Conduits.
- H. B. Stabler—Transmission on New York-Washington Cables.
- E. F. L. Benson—Special Central Office Equipment for Tandem Trunk Operation.
- W. E. McMahon—Operation Methods.

Bell Telephone Duck Pin League.

The fourth annual meeting of the Bell Telephone Duck Pin League of Greater Pittsburgh was held September 16 in the Company's building. It was decided to limit the number of teams in the league to ten. The salesmen have organized a team and it has been admitted to the league. Other teams which will contest are "Plant," "Grant," "Collection," "Engineering," "Maintenance," "Bookkeeping," "Commercial," "Western Electric," and "A. T. & T." The matches will be rolled in the Club Alleys, Fifth Avenue and McMaster's Way.

Trans-Atlantic Cables and Their Operation

Proposed Modification of Existing Arrangements to Provide for More Efficient and Economical Operation

A provisional modification of an arrangement which has existed for many years has been reached between the Western Union Telegraph Company, The Anglo-American Cable Company, and the Direct U. S. Cable Company, under which the cable systems of these companies now worked exclusively in business connection with each other, but operated and maintained separately, will be operated in direct physical connection with each other and with the Western Union land system.

Two objects are to be attained by this arrangement:

First, more efficient and economical operation.

Second, the introduction of new forms of service to the advantage of the public.

THE TRANS-ATLANTIC CABLE SITUATION AND COMPETITION.

The trans-Atlantic cable situation is as follows:

The Mackay group of seven cables, including the German cables, owned by or worked in physical connection with the telegraph lines of that company form one system.

The French cables comprise an independent system, using both the Western Union and the Mackay land lines for their United States connection.

In competition with these is the Western Union group of cables, eight in all, owned by three separate companies, two of which are British companies owning five of the eight cables.

Two only of the British owned cables terminate in the United States and all of them are entirely dependent on the Western Union for their connection with any telegraph system, or for their reaching any centre of business, and are now worked exclusively, so far as business is concerned, with the Western Union.

EFFICIENCY INCREASED, WASTE PREVENTED.

The proposed arrangement between the Western Union, the Anglo-American and the Direct U. S. companies will bring the eight cables of the three companies under one operating control. The consequent increase in effectiveness and economy will place the Western Union in a position to offer certain advantages in cable service not now enjoyed by the public.

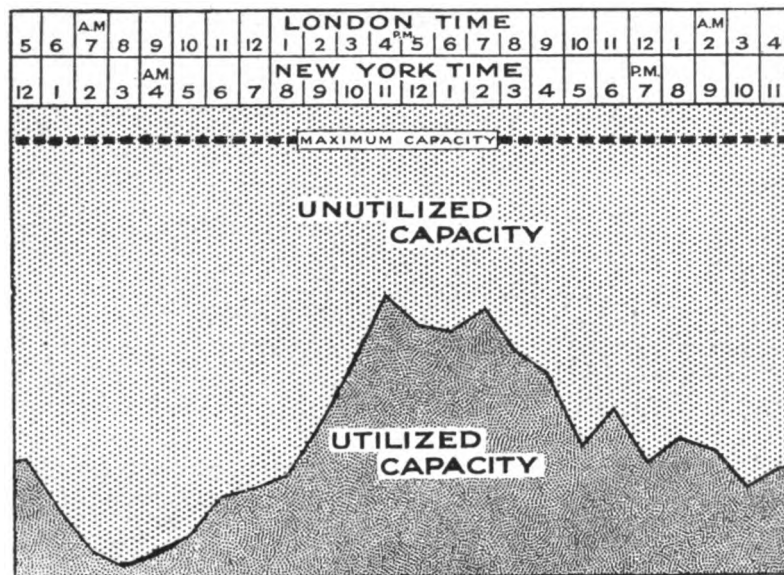
The other way open to enable the Western Union to make such improvements and introduce such new services as it proposes to do, would be to lay new cables. This would seem to be the height of folly. Duplication of the existing trans-Atlantic cable facilities at a cost of many millions, when there are more than ample facilities for all business, would put an unnecessary financial burden upon an already fully burdened business and would probably postpone the reduction of rates or introduction of new services.

LIMITED BUSINESS HOURS AND IDLE FACILITIES.

As at present carried on, the trans-Atlantic cable business is practically all flash service, i. e., instantaneous. Owing to the difference in time, there are only a few business hours of the day common to both sides, and during these hours at least 75 per cent. of the cable business is done. This is demonstrated by the accompanying chart.

In the interests of international business nothing should be done to interfere in any way with the so-called flash or instantaneous service, and the lines should be kept clear to accommodate

Chart Showing Present Utilized and Unutilized Capacity of the Trans-Atlantic Cables



such messages during the few business hours common to both countries; but to continue to confine the cables to this class of service, as at present, will utilize only about 25 per cent. of the existing capacity of millions of property and places on that limited service all the capital, maintenance and operating charges.

The limited time and the character of the business, if best results are to be obtained, demand direct cable circuits between principal centres of the two sides of the Atlantic, as well as special circuits devoted to special business.

EFFICIENT SERVICE REQUIRES EFFICIENT FACILITIES.

To meet these requirements it is essential not only that there be at all times sufficient cable facilities, under one control, but that they should be operated interchangeably with each other and in close physical connection with land lines as one system. Ample spare facilities are necessary to provide against the very frequent cable interruptions.

Neither the Western Union nor any one of the companies of the Western Union group has, independently of the others, facilities enough to handle the business which at times any one company might be called upon to take care of, because of some particular rush of business, or because of some cable interruption. Nor could any one company furnish all the direct circuits necessary for efficient service, although the combined facilities of these companies are ample if they could be used supplementary to each other and interchangeably.

As it is, each company operates its own cables through separate and distinct offices and under separate and distinct management. All interchange of business is by actual transfer of the business from one company to the other, with the consequent delay and interruption of a service in which seconds are valuable.

DAILY AND WEEK-END CABLE LETTERS.

So soon as the proposed arrangement goes into effect, the Western Union purposes, with the consent of the British Post Office Department, to introduce at least two new features or services in addition to the proposed deferred rate—the

DAILY CABLE LETTER and the WEEK-END CABLE LETTER

at a very low rate for cable service only. This will enable the public to save the six to eight days consumed in the trans-Atlantic passage of mails.

MONOPOLY OF CABLE BUSINESS IMPOSSIBLE.

There is no cable monopoly possible. The three systems—the Western Union, the French and the Mackay—will continue to exist.

The Mackay Companies is a holding organization with no physical property, but exercising through stock ownership, lease or contract, operating control of various companies owning land lines and cables which make up the Mackay System. Through this control all the various properties are operated as one system to great advantage in service over what could be given by these same companies if operated separately.

The French cables form another system.

The Western Union System, under the proposed arrangement for one operating control over the present segregated units, will be enabled to make two distinct advances in the trans-Atlantic cable business:

1—*Better Service.* This will be insured by more efficient and economical working resulting from single direction over the operation of both cables and land lines.

2—*Public Advantages.* The greater part of the cable capacity has been and is now unutilized. It will continue to lie dormant and unutilized under existing conditions and traditions. The Western Union purposes to make these wasted facilities useful to the public by means of new kinds of cable service.

In addition, the Western Union intends to nationalize its land lines by opening them to all trans-Atlantic cable companies.

THEO. N. VAIL,
President.

Reciprocity

One of the Company's line foremen in the New Castle district while making some necessary toll line repairs requested permission to trim a tree. The conversation with the farmer-proprietor follows:

"May I trim that tree?" said the foreman.

"No, you may not trim that tree," snapped the owner.

Later the foreman removed several worthless poles which the owner of the tree desired very much. Then this conversion took place.

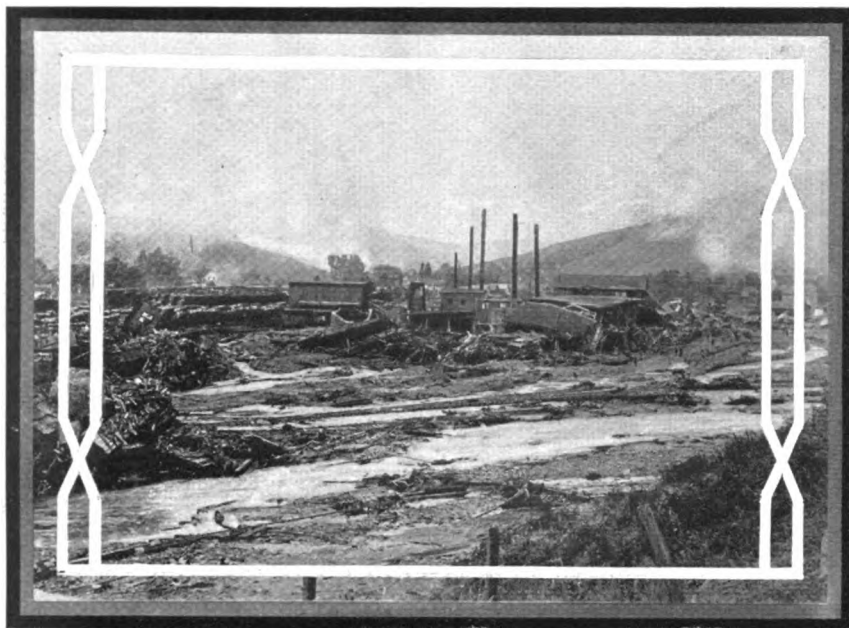
"May I have those poles?"

"No, you may not have those poles."

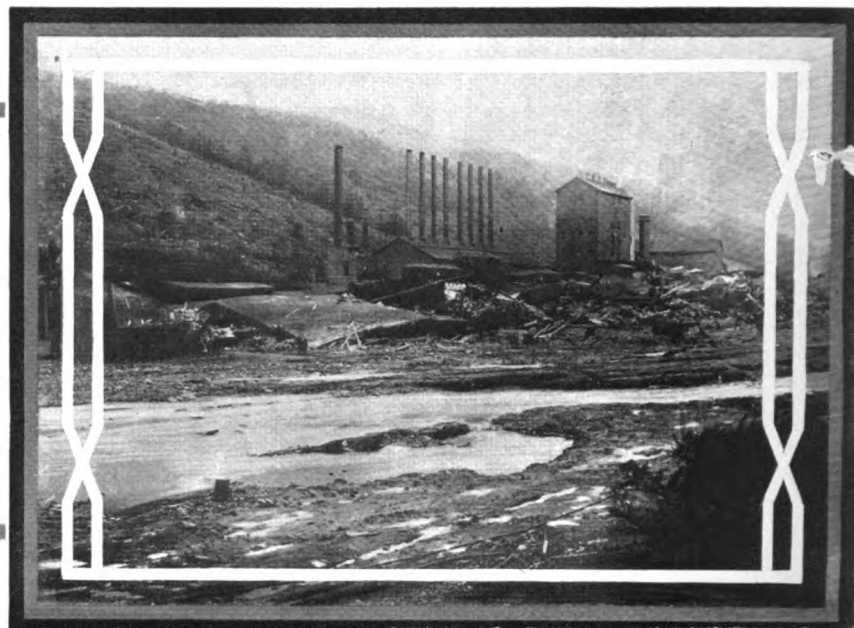
Then came a silence.

"I guess you may trim that tree," ventured the owner.

"I guess you may have the poles," concluded the foreman.



Goodyear Lumber Mills, Austin, Pa.



Bayless Pulp and Paper Mill, Austin, Pa.

The Austin, Pa., Flood

(Continued from page 1)

alarm automatically and then remained at the board and notified subscribers both in town and at Costello—a smaller town three miles down the valley.

It so happened that at the time of the catastrophe our Company had a force of four men with Elmer Stump, of Bellefonte, as Foreman working directly opposite the main hotel in Austin. As soon as Mr. Stump learned what had happened he notified one of his force who was working about a square away, and all of them sped to the hills. On the way, however, L. N. Walzer, who was behind the others, noticed a woman prostrate in the street and unable to save herself. Without a moment's hesitation and at the risk of his own life, he turned back and carried her to a point of safety. After Foreman Stump had reached the hills and the water had sufficiently lowered, he obtained a subscriber's station and proceeded toward the dam until he reached a point where the trunk line was intact. It is, of course, understood that all of the trunk line below the dam was entirely swept away. Mr. Stump connected the local station with the remaining part of the trunk line and reported to his superior, C. A. Donachy, at Williamsport. The latter reported to J. Bailey at Harrisburg, and he in turn to the Plant Superintendent. Without delay J. T. Harris, the Traffic Supervisor, and S. E. Gill, the Traffic Superintendent, both at Harrisburg, were also informed. As soon as plans began to be made to render aid and to send equipment and men, members of the Associated Press were notified and thus Harrisburg gave to the world the first news of the disaster. One of the city papers issued a special edition based on and credited to the Bell telephone report originated by Foreman Stump.

At Galeton, about 20 miles northeast, when C. R. Shelly, our Plant Wire Chief, heard of the flood he obtained two telephone sets, rushed to the scene in an automobile and connected them to toll lines. C. E. Lovell, the Local Agent, later received orders from the Company's officials and permitted survivors and others to call up their friends at out-of-town points to state that they were safe. It was afterward stated by another Plant official, who had occasion to know, that Mr. Shelly was on duty practically without

intermission for two or three days. At Coudersport, C. E. Lovell, the Commercial representative, was also on duty, as were practically all of our employees at all times as long as the necessity remained. Coudersport is the only office through which Austin regularly reaches outside points. Therefore, the Traffic force at Coudersport had to do all of the switching to toll and long distance points. The telephone traffic immediately jumped to record points, and the whole force was on duty almost without intermission.

Newspapers, relatives and friends of the inhabitants of Austin and business people everywhere were insistent for news and particulars. In order to increase the facilities at Coudersport it was necessary to build lines to the nearest long distance circuits, three miles distant. This work was completed within twelve hours by using farmers' lines. As a result two additional circuits were obtained to Kane, Pa., and two to Elmira, N. Y.

Scarcely less thrilling than the first newspaper articles describing the scenes of horror at the Austin catastrophe is the story of how this Company's employees, both in the Plant and Traffic Departments, responded to the need for quick thinking and quick acting. Their work was heroic.

Burdette Stryker, Superintendent of Plant at Harrisburg, was one of the first to hear of the breaking of the dam on Saturday afternoon. It was not until 10.25 Sunday morning, however, that it was decided to send a larger switchboard to replace the small one which had been sent and was then in service. He at once called his chief clerk and ordered that the one-position magneto switchboard, always held in reserve at the Harrisburg warehouse, should be sent to Austin on the first train leaving Harrisburg. Two installers and all the necessary apparatus were ordered to accompany it. Altogether, the shipment included five separate boxes of apparatus and two emergency trunks, totaling something like 1,000 pounds. It was decided to get this shipment off on "Buffalo Express," a through passenger train leaving Harrisburg at 11.35 A. M. The successful working out of this plan demanded the speediest action. F. F. Lutz and Wayne Kershner, two of Mr. Stryker's lieutenants, were summoned from their respective churches by Western Union messengers. A taxicab met Lutz, and Kershner proceeded on foot to the Company's warehouse, about a mile away in the extreme southern part of the city.

At the same time, A. S. Schultz, J. W. Weaver and E. Ebenbach also started at top speed for the same place, the four of them arriving about 10.55. Two transfer wagons were quickly summoned by telephone to convey the material to the Union station. In ten minutes it was loaded and started to that point. In the meantime, Mr. Stryker had arranged with the Pennsylvania Railroad officials that the shipment might be placed on the train. H. F. Hope, another of his men, went to the station and had everything in readiness for the prompt transfer of the switchboard and equipment. The "Buffalo Express" was held up nearly ten minutes in order to place on board the shipment, but once started, the apparatus went straight through to Austin. It arrived there about 5 P. M. Sunday evening, and was immediately set up in the local hospital. Early Monday morning it was in good working condition.

S. E. Gill, Traffic Superintendent, Harrisburg, told a dramatic story at The Philadelphia Telephone Society's October 4 meeting of the manner in which his force did its part. He said, in part:

"The Plant Department's men did a wonderfully good job from the very start at Austin. They were the first on the scene, sent the first news to the outside world, and in a thoroughly capable manner took charge of all Plant matters. But there is another point that I want to tell you about. You have all read in the paper about how heroically our operator at Austin, Miss Kathleen V. Lyons, warned as many people as possible of the coming flood-wave. That in itself was a brave thing to do. But remember this, that operator and the other two operators at Austin and all the operators in the neighboring towns are on duty this very minute, working away at breakneck speed to put up the connections that are demanded by the State officials, the press and the grief-stricken people up there at the scene of the disaster. They were heroic at the start and their heroism is lasting through this trying time.

"About 3.30 on Saturday afternoon, September 30, I received my first knowledge of the trouble at Austin. I had just arrived at my home. At once I returned to the office, and about the time I reached there a connection was established straight through to Austin, and I talked with our Foreman Stump, the man who took a sub-station set and connected it up with a trunk line so that the country might hear what had happened."

"Miss Lyons was the only operator on duty. She said that her first report of the breaking of the dam came from a man named Davis. He from a nearby house gave notice by calling over the telephone located there. The first thing she was to call the large mill immediately below the dam. Several hundred employees were at work there, and I want to say right here that most of the employees of the Bayless mill owe their lives to the fact that Kathleen Lyons stayed on duty when the danger to herself was so great.

"Then she began to call officials of the town, the fire department and others. She notified the proper ones to blow the whistle constantly—a generally understood warning to flee to the hills.

"It was about this time that Stump, the Plant employee, sent word that he saw buildings toppling over on every hand. Our operator sounded this alarm also, and then she tried to reach Costello, three miles down the valley. She failed. But a boy at the lower end of Austin who was reached jumped on a bicycle and rode madly into Costello and notified the people of that place of what was coming. Miss Lyons states that it was about eight minutes between the time she received her first warning until she left the switchboard, and then, mind you, she left it only when she saw a church steeple, a block away from the office, topple and fall into the street. Then she left the switchboard and fled for her life up the side of the mountain. The water was actually at her heels.

"Miss Margaret Manion, the Chief Operator at Coudersport, proved herself a heroine at the same time. The first she heard of the trouble was when the Galeton operator called her and asked if she had heard that the dam had burst at Austin. The Coudersport Chief Operator didn't wait a minute. She called the trouble man and told him what had happened. He in turn told the operator to order him an automobile as he left the building. She did so, and notified every doctor and official that she could reach. In a few minutes every machine in Coudersport was headed at top speed towards Austin in an effort to render assistance. Then the Coudersport operator called Harrisburg. I talked with her, and among other things instructed her to see that order was maintained in and around the central office. She was told to accept urgent calls to any part of the country whether the calling parties had money or not. The calls were to be limited as much as possible in order to open the lines to all in immediate

need. This operator showed remarkable coolness, too, and at once sent for her entire force. I am glad to tell you that since that moment every one of the six positions on the Coudersport switchboard has been covered by an operator, and every one even now is working at her highest efficiency.

"All four of our Austin operators escaped with their lives. I think none of them lost members of their immediate families. But think of it, they lost their friends, homes, personal effects, almost everything they valued most in this life. In spite of it, those heroic girls are sitting at the switchboard right now, seeing that the stricken town of Austin is receiving every relief that telephone service will afford."

Rewards for Heroism

It is, of course, generally known that the Company does recognize faithfulness on the part of its employees whether it be as a result of long continued service or of good work under particularly trying circumstances.

It has just been approved that the three operators at Austin, Pa., who showed such willingness and application during the great need for their services, shall be rewarded as follows:

To Miss Kathleen V. Lyons, \$250.00 and a watch suitably engraved.

To Miss Lena Binkey, Chief Operator, \$100.00 and to Hazel Knapp, \$50.00.

Good Traffic Work at Punxsutawney

Monday, October 2, at 3.00 A. M. the Butler District Manager received a call from the Punxsutawney Chief Operator explaining that the operating force at that place had been very busy since 9 o'clock the evening before, and that everyone was excited because of the floods brought on by the heavy rains on Sunday. She also stated that the water was two feet deep in the street in front of the office, and still rising. Many of the people of the town had deserted their homes and fled to the hills for safety, thinking that the dam at Cloe, about four miles from Punxsutawney, might break at any time. The operator explained that they were receiving lots of calls, and that the people of the town were very much excited. She stated that there were men at the door to take them out of the office in boats, and

that she had called to be advised what to do. The operators were told that it would be dangerous to leave the office in boats at that hour of the morning, and that the people, no doubt, were unduly alarmed on account of the recent disaster at Austin, Pennsylvania. They were advised to stay in the office.

The local manager at DuBois was then called and instructed to go to Punxsutawney on the first train and arrange to take care of the operators. By the use of boats and wagons, relief operators were obtained and the night operators taken to the nearest hotel, where arrangements were made for their accommodation until the water receded.

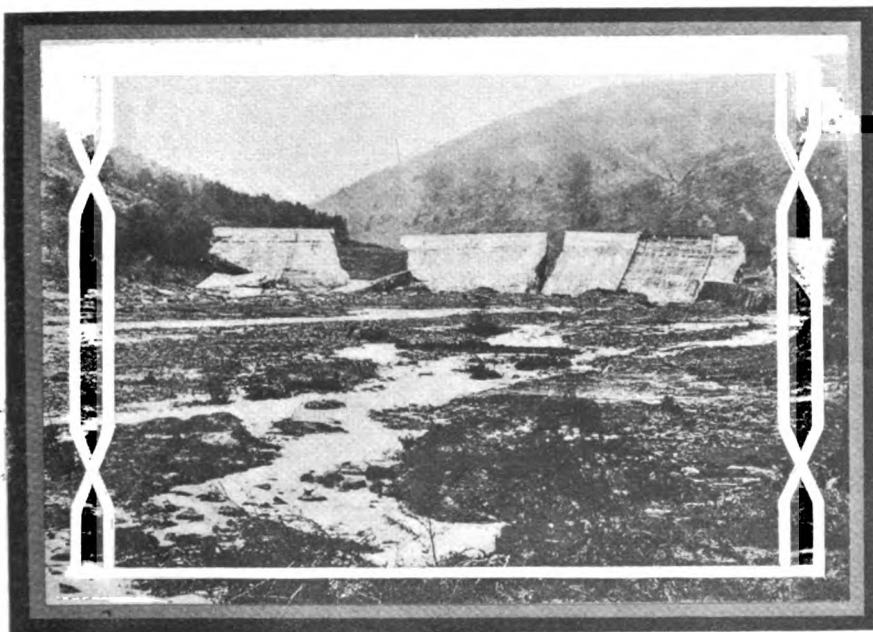
The operators received many words of commendation for their bravery in sticking to their posts and taking care of the business at a time when it was so important to have telephone service.

Two Other Telephone Heroines

Early on October 2, fire occurred in the Saratoga Hotel, at Chicago, Ill. Guests in every room were notified by Miss May Waldron, the telephone operator, although the room in which she worked was filled with smoke. She remained at the switchboard and told the guests to come down the stairs and not to be frightened. The fire was on the fourth floor, and was extinguished by the fire department.

At St. Louis, Mo., officers of the Health Department were fumigating the prison in the Four Courts Building when about 200 cans of sulphur became ignited by accident. Miss Theresa Gorman, the telephone operator in a nearby room, stayed at the switchboard, although she was nearly suffocated, so reports say, and notified the Chief of Police, the Deputy Sheriff and other officials. It is reported that 113 prisoners owe their lives to her promptness.

The demand for speed is responsible for our modern means of travel and communication and for labor-saving devices. This same demand is no less marked in its choice of accurate and quick employees. It chooses those who show an aptitude for their work and a speed in accomplishing it. No one knows the outcome of this general demand for speed, but practically every one may see how it benefits both groups and individuals.



Bayless Dam Looking North from Austin, Pa.



Building in Which Our Company's Central Office Was Located at Austin, Pa.

Upper: Miss Kathleen V. Lyons—Operator on duty when the Bayless Dam broke.

Left: Miss Lena Binkey—Chief Operator.

Right: Miss Hazel Knapp—Operator.



Center group, from left to right:

- 1—W. Walzer
- 2—H. C. Jodon
- 3—S. J. Shortess
- 4—J. C. Burris
- 5—E. Stump



Employees of the Traffic and Plant Departments Who Distinguished Themselves in the Austin, Pa., Flood

Organization Changes

L. Smithing, formerly Local Manager at Honesdale, Pa., has been transferred to Scranton.

T. A. Garvey, Local Manager, Carbondale, now has charge of the Honesdale territory, with the assistance of W. A. Dellmore as Agent.

S. T. Stinson has been transferred to the position of Construction Foreman, and H. F. Hope has been appointed Plant Supervisor of the Harrisburg District.

W. A. Fegley has been transferred to the position of Installation Foreman, Reading, and V. L. C. Hasskard has been appointed Plant Chief at Lebanon, Pa.

A. S. Schultz has been appointed Equipment Engineer in the Plant Engineer's Office, Harrisburg, Pa.

G. W. Beyard has resigned as Wire Chief at Uniontown. His place will be filled by A. A. Webb, transferred from Latrobe, Pa.

Name	Position	Location
E. B. Payne	Wire Chief from Inspector	Transferred from Plant Eastern to The D. & A. T. & T. Co., 406 Market St., Phila.

W. G. Gump	Completion Clerk	Report Transferred from Plant Supt's. office Harrisburg to The C. D. & P. Tel. Co., Pbg. Plant Dept.
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W. R. Barrett	Plant Wire Chief to Central Office Wire Chief	Hazleton to Scranton, Pa.
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W. A. Dellmore	Salesman to Agent	Carbondale to Honesdale, Pa.
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S. T. Stinson	Plant Supervisor to Construction Foreman	Plant Dep't—Harrisburg Division.
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H. F. Hope	Equipment Engineer to Plant Supervisor	Plant Supt's Office—Harrisburg, Pa.
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The Delaware & Atlantic Telegraph and Telephone Company

J. R. Tenley	Lineman to Sub-Foreman	Gen'l Const. Foreman's Dep't.
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The Central District and Printing Telegraph Company

E. Brown	Lineman to Foreman	Const. Div., Pittsburgh, Pa.
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A. D. McPherson	Lineman to Foreman	Const. Div., Pittsburgh, Pa.
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C. R. Rickard	Installer to Wire Chief	Charleroi to Monessen, Pa.
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S. K. Snyder	Repairman to Wire Chief	Latrobe to Greensburg, Pa.
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C. Kerber	Lineman to Repairman	Hiland, Pa.
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T. J. Burke	Salesman to Local Manager	Sharon, Pa.
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Philadelphia Traffic and Plant Work

A Prominent Subscriber Comments on Efficient Bell Service

On October 30 a Philadelphia subscriber had occasion to call Washington, New York and several other large cities, as well as the scene of the Austin, Pa., disaster. These calls were made from his Spruce central office telephone, and while the operators had no way of knowing who the caller was, they acted, so he stated, as if they had received orders to put through every call instantaneously. "It seemed," said he, "as if they were expecting my calls and knew of their importance. There was not a hair's breadth loss in time. It was the most perfect service that I have ever received, and at a time when I needed it more than ever before. I want you (the Germantown District Manager) to notify them to that effect."

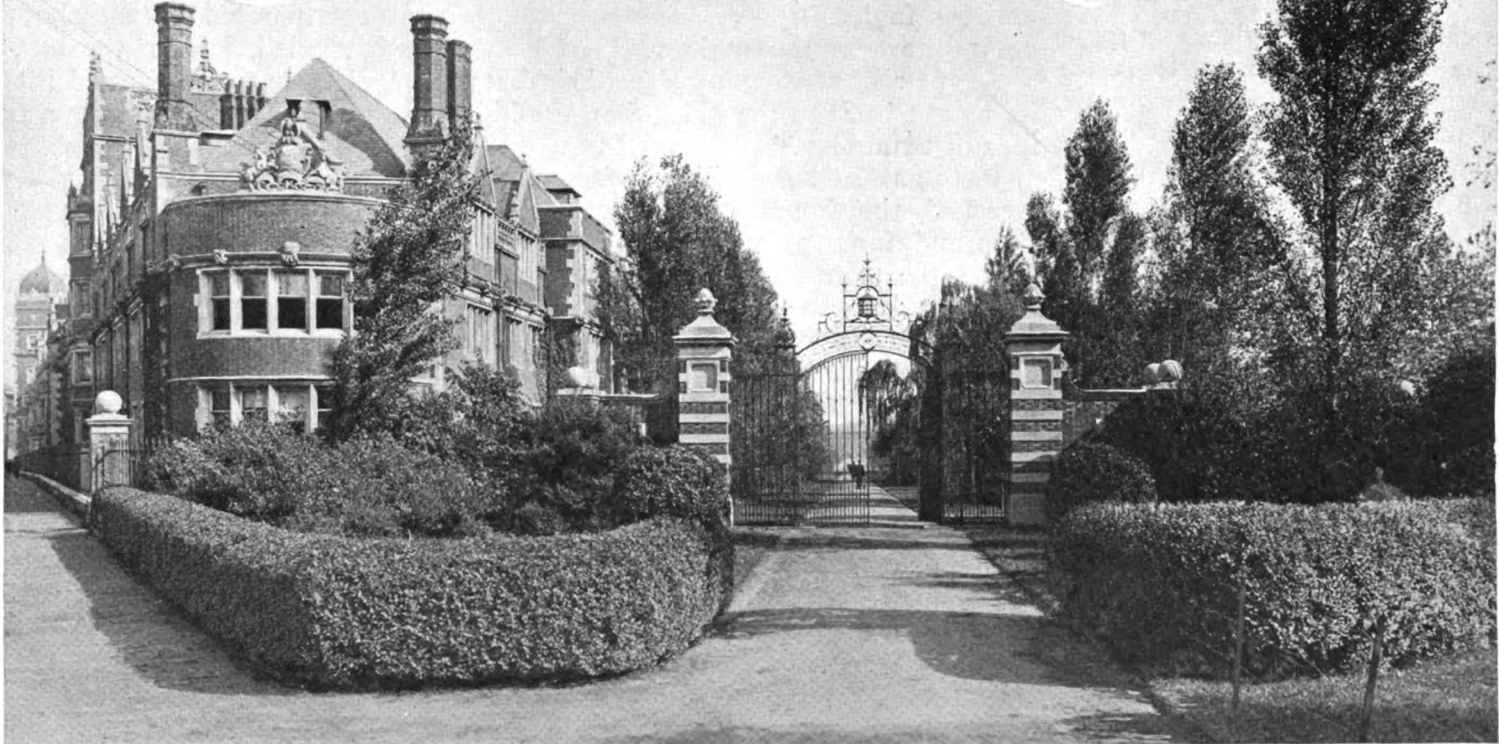
The subscriber was Colonel John S. Mucklé, President of the Pennsylvania branch of the National Red Cross Society.

This subscriber also told of another incident. Not long ago a friend of his complained that the telephone in the residence was not giving good service, and when the telephone representative came to clear the trouble he found that the wall paperer had plastered wet paper over the telephone wire and around the instrument in such a way as to cause a short circuit. "That proves," said the Colonel, "that much of the trouble that some people meet with telephone service is not the fault of the instrument nor of the company."

THE TELEPHONE NEWS



TELEPHONES IN A GREAT UNIVERSITY



Some General and Special Facts About "Old Penn"



IF the University of Pennsylvania officials treat all their visitors as well as they did a representative of THE TELEPHONE NEWS a few days ago, well—each one of them deserves a decoration for courtesy, that's all. The NEWS man was after a story, as usual. He went straight to the office of the highest official he knew. On the desk of this man's secretary he laid his card, and asked for the learned doctor. The young woman didn't even glance at the card; she merely said: "Do you want to see the Doctor, personally?" I assured her I did. Imagine my surprise when she pointed to a wide-open door leading into an inner room and said, "Very well, walk right in;

he's in there."

And the next moment I stood in the great, dim study—"study" seems much better than "office"—of one of the foremost educators in this country. You may take it for granted that I was duly impressed.

But before there was time to become over-awed, almost before I could note the character of the big room, its high, shaded windows, its modest and comfortable furnishings, its deep shadows relieved by occasional high lights, almost before I had time to know that here was a room vastly different from most executive offices and that it appeared a perfect setting for the master-mind that occupied it—almost before I had time for any of these things, I say, the gentleman had risen from

his seat behind a flat-topped desk and was stretching out his hand in greeting.

"How do you do, sir?"

"Good morning, Doctor."

By this time the Doctor had pulled up a roomy, old-fashioned chair to the corner of his desk with one hand and had pressed me into it with the other.

That first impression of the man will stay with me a long time. First of all, he seemed human. His hand clasp was firm, warm and sincere; and his quiet smile put one immediately at ease. I was actually "at home" with him. It was easy to see why he is probably the most loved official in the contemporary college world. If any one of his qualities stood out pre-eminent in that first impression, it was his sympathy. Sympathy and strength—and then more sympathy—seemed to radiate from his person. It was a privilege to meet him.

"So you are with the Bell Telephone Company," he said, when I had given myself a name and an occupation. "That's a great corporation."

Modesty naturally kept me silent at this stage. So I merely looked pleased—hoping to signify assent.

"Let me see," he continued, "your particular Company operates in several states, doesn't it?"

"In seven altogether, sir, and in the District of Columbia."

"How many employees have you?"

"About 11,000 at present."

"Indeed. That's a big army. About how many telephones do you

(Continued on page 5)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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payable in advance

Vol. VII NOVEMBER 1, 1911 No. 21

Gallery Play

LET us suppose it's the deciding game of the World's Series. It is the ninth inning and the score's a tie. The first man up singles. Then comes Eddie Collins—a jewel of a ball player—always fit, always reliable.

Connie Mack signals for a sacrifice.

But let's suppose, only suppose, that this time Collins hesitates to obey—reasoning to himself something like this: "Why should I sacrifice; why not hit 'er out; I know; I can do it."

Maybe the plaudits of the crowd or the praise of to-morrow's newspapers are too appealing to be denied, and he hits—into a double play.

Is there a fan who wouldn't slide down into his seat and groan?

Is there a lover of the fine points of any game who wouldn't experience a bad moment of regret that so grand a player could fall so far?

There is no moral—but there is an analogy.

Just the other day one of our suburban subscribers reported a matter that demanded the immediate and personal attention of a Traffic representative.

The subscriber was interviewed and his complaint diagnosed. It developed that the inconvenience he had been experiencing had resulted from his failure to understand several of our service regulations. These were made clear, and at the end of the interview our representative left him in an entirely happy and appreciative frame of mind.

But within the hour along came an employee of another department, on different duties bent.

The talk naturally drifted to the subject of service. Again the subscriber told of the inconvenience he had been experiencing—but before he had an opportunity to explain the satisfactory manner

in which it had been adjusted, the new comer jumped into the list as a sort of a cure-all specialist, delivering himself somewhat as follows:

"I'll tell you. For various reasons the Telephone Company is continually replacing and adding to its operating force everywhere. It is plain to be seen that the new operators must be taught and started somewhere. I happen to know that applicants are put out here in the K—office because the calls are few and the requirements less severe. Besides there is a good opportunity for instruction."

Imagine the results! It is perhaps best that we draw a curtain over the subsequent events and developments.

It is needless to say that the picture of the K—operating room as this apparently well-informed employee drew it was entirely faulty.

And now for the analogy.

At the risk of stopping a few brickbats, let us get back to the older-than-the-hills idea of team play.

Just as Eddie Collins might have wrecked the hopes of a few hundred thousand fans, as well as the spirit of that same team-play, by deliberately ignoring orders, so too lies a pitfall for the telephone employee who ignores the first principle of our own game.

Undeniably the assumption of superior knowledge comes natural to us all. Just as the applause of the multitude warms the heart of the ball player, so perhaps does occasionally a telephone man play for the gallery to the injury of himself and his company.

It, of course, runs counter to the instincts of any red-blooded man to "I don't know" and "I really will have to ask you to see so and so" when some little point outside his own individual job is at issue. That there is no particular magic in Plant, Traffic, Accounting or Commercial achievement is well appreciated. But when we talk, let's know what we are talking about, absolutely and entirely.

Fifteen Minutes Early

TWO young men boarded a suburban train at a terminal in one of the larger eastern cities. They dropped into the same seat, and almost immediately the train began to move. One of them spoke. He said:

"My hat's off, Bill, to the man who said he owed his success to being always a quarter of an hour ahead of time."

"What's the answer?" asked his companion.

"The answer is—I've had a triple lesson in his theory this very day. This

morning I got an early start from the house; caught the 7.48. That brings me to the office about 20 minutes ahead of time. All the way in I was thinking about that old chap's saying, and wondering whether anything might happen to me to prove its value.

"I didn't have to wait long. On the way from the station to the office I frequently get my shoes shined. This morning I passed the first shine artist without thinking of it, but as I was a pace or two past his chair, I heard him sing out, 'Shine?' Well, I didn't feel like turning back, although I did want a shine, since he made me think of it. A few steps farther on a hustling young Greek has another stand. He did the stunt a little differently. When I was about 15 feet from him he spied me, sized me up as a prospect, pointed to my shoes with his brush, smiled, and in the best language he could muster, suggested that *he* shine my shoes. You see, he was a trifle ahead of schedule. He got the job.

"When I reached the office I plumped right into another case. The chief was already on the job. He came out to my desk with a bunch of papers in his hand and a cluster of frowns on his forehead. "What time does Brown get here?" he asked.

"At 8.30, usually," I answered.

"Well," he said, "I want to catch a ten o'clock train, and here's a two-hour job that I wanted to finish before that time. Look it over and if you can do it, handle it yourself."

"As it happened it was a calculation that I've always wanted to make. I've always had a notion that I could do it just as well as Brown. So I jumped in on it and had it on his desk at a quarter of ten. He seemed pleased, and thanked me. That was the biggest proof of the three."

"But that's only two," his friend commented.

"I know it," answered the other, fumbling among some papers in his pocket, "I'm coming to that." He produced a brand new timetable.

"See that schedule?" he said. "It's the new winter timetable for this line. I didn't know it went into effect to-day, but it did, just the same, and if I hadn't been at the station about 15 minutes early, you can see how I'd've been left. The 5.52 has been shoved up to 5.40.

"That's the third lesson I've had to-day. What do you think of the idea?"

His companion carefully removed his hat and placed it on his knees. Then he pointed to it significantly.

"Mine's off," was all he said.

Pittsburgh Division**L. W. GRISWOLD, Division Correspondent**

Pittsburgh District. "Considerable new business can be secured by moving unprofitable public telephones from apartment houses and installing in their stead telephones in the apartments of the various tenants," said a telephone man the other day.

"The Carnahan Apartment House in Wilkesburg is an example," he continued. "It contains fourteen tenants and had a public telephone, the receipts of which averaged \$1.23 a month. Somewhat of difficulty was experienced, as is the case with most apartment houses, in having the telephone answered promptly on incoming calls. It seems as though each tenant felt that the call was for some other tenant, and unless the operator rang an unusually long time it was very seldom that the telephones were answered. Following a notice of our intention to terminate the contract covering this public telephone we received a letter from an official of one of the large industrial plants asking us why we were removing this telephone. The matter was satisfactorily explained to him and an active canvass resulted in three new telephone applications within the building and the prospect of closing two additional ones within the next two weeks. Four of the tenants are still out of the city and it is probable that additional contracts will be secured when they return."

Erie District. A stout, middle-aged woman, with an air of self-assertiveness, entered the Erie Commercial office a few days ago, and, after paying her bill, commanded, rather than requested, that the telephone in Mr. Blank's office be disconnected at once. The cashier very courteously inquired if the service wasn't satisfactory. To which Mrs. Blank replied:

"The service be hang'd! A few minutes ago I tried to call Mr. Blank up by telephone, and heard him tell the office boy to say he was too busy to talk to me. I'll show him what I let him have a telephone in his office for."

At a special meeting of the common council at Warren, Pa., the telephone ordinance, which has been hanging fire for so long a time, was passed and is now operative. It gives our Company the right to lay conduits for the reception of wires in all the streets of that borough.

Work installing these conduits has already been started.

A rural subscriber connected with the Corry, Pa., exchange, whose telephone had been temporarily disconnected, stepped into the Corry office a few days ago and said to Local Agent Giblin:

"I know why you went and shut off my 'phone. Because that dern old N. N. has been tellin' you lies about me. But let me tell you somethin'. Half the lies she tells about me ain't true."

The Raymond Telephone Company, a Plan "A" rural line of 7 stations, has been connected with the Corry, Pa., exchange. The application was secured by T. F. Giblin, Local Agent at that point.

The following letter from the Erie Elks' Club, expressing appreciation for services rendered by our Company in reporting election returns, was received by L. H. Knott, Local Manager at Erie:

Dear Sir:

At the regular meeting of the House Committee of Erie Lodge, No. 67, B. P. O. E., held October 2, a resolution was offered and adopted directing the Secretary to express to you the appre-

ciation of the election returns on the night of September 30. Notwithstanding that the returns were rather complicated and difficult to report, your service was very good and greatly appreciated by our members.

Owing to a press of other matters I have been dilatory in addressing you, but I trust that you will overlook this, and remain,

Very truly yours,

W. H. ERWIN,

Secretary Erie Elks' Club.

In Erie novel means were used to furnish World's Series returns to Bell patrons. An employee was stationed at the Bell telephone in the private office of the Erie business college. From this point an unobstructed view was obtained of *The Erie Times* scoreboard. This board gave each play as it occurred. The Bell man transmitted these plays to the Erie Commercial office. A number of employees were kept busy from 2 until 6 P. M. answering subscribers' inquiries. Union City, Edinboro and Harbor Creek were among the towns served in this way by Bell telephone.

The Erie opposition was conspicuous in that it did not give out World's Series returns. This is said to be due to its inability to get a suitable position for installing a telephone. ANTHONY.

Greensburg District. A recent electrical storm in Greensburg caused every pair of a 50-pair cable to be in trouble. A cable repair gang was on the job promptly, and while they were at work another storm brought down a twisted pair, connected with the cable, onto a 2,200-volt circuit. The subscribers began to complain of trouble on their telephones and special efforts were made to restore service. In one case the subscriber informed the Local Manager that within five minutes of the time when his service was restored he received over the telephone an order for a carload of oil. He complimented the Company for their promptness and efficiency in emergencies, and said that the lack of telephone service would cause him to lose many valuable orders.

The town of Scottdale, Pennsylvania, has recently become the site of a gang of "fire-bugs," from whose ravages no less than six fires have occurred in a recent period of nine days. During one of these fires there were burned down several buildings within ten feet of our main trunk lead, upon which, in addition, there were two 100-pair cables. Early in the progress of the fire Salesman Lang appeared and directed the attention of the firemen to the line, several poles of which were then blazing. He explained that if the cables were consumed the town would be telephonically "off the map" for a short time at least. Two streams of water were used to protect our plant, and the cable was not damaged. It seems remarkable that these cables were not melted when within such a short distance of the fire. Scottdale is a town with about 8,500 inhabitants, and looks for fire protection to a sturdy company of volunteers, and recent events have shown that their confidence was not misplaced. The Central District & Printing Telegraph Company owes the Scottdale Fire Department a debt of gratitude for the prompt, efficient and careful protection of the telephone plant during the one fire at least.

The Brush Valley & Mechanicsburg Telephone Company, a rural connecting company, in Indiana County, is extending its lines and adding a number of new subscribers.

At Indiana, Pa., the Commercial force, including the District Manager, Local Manager and district salesman, had a conference on methods of obtaining more business. Ideas were ex-

changed which, it is expected, will result in some first-class applications for service.

The Local Manager at Indiana recently proved quite resourceful at the annual outing of the Indiana Lodge, B. P. O. Elks. A baseball game had been arranged between the married and single men. For score cards A. T. & T. Company blot- ters were used, the reverse side being used for the score, a unique "ad." bearing the following slogan: "What every Elk should have—a 'Bell' telephone." These improvised score cards were distributed among some 500 Elks, and much desired publicity was realized by their distribution.

HUGUS.

Wheeling District. That the Wheeling, W. Va., Board of Trade appreciates the value of telephone courtesy in any line of trade is shown by the following postcard. This card has recently been mailed to business men throughout Wheeling and vicinity:

Buy Your Requirements in Wheeling

Instructions to Employees When Telephoning

Cultivate telephone acquaintance with our customers by exchanging names when talking.

The tone of your voice will either make a friend or an enemy for us.

If you were talking to a customer face to face and you let a note of impatience creep into your voice, he might overlook it because of the friendlier aspect of your face.

But over the telephone let the slightest suspicion of indifference or impatience creep into your tone and we are sure to lose.

When you tell a customer you cannot do what he asks, take plenty of time to tell him why you cannot.

When you finish taking an order say "Thank you," and say it as if you meant it.

If not a member send in your name to

BOARD OF TRADE.

HEALEY.

C. D. & P. Pioneers

In connection with the sessions of The Telephone Pioneers of America now being held in Boston, it is interesting to note the many members from the Pittsburgh territory. These men are the following: J. H. Boeggeman, A. K. Dement, B. F. Lloyd, E. McElligott, W. D. Paynter, P. G. Reynolds and D. Leet Wilson, of Pittsburgh; D. J. Murphy, Uniontown; H. T. Sapp, Steubenville, O.; J. K. Stitt, Salem, O.; F. Swaney, East Liverpool, O.

M. H. Buehler, of Philadelphia, and W. W. Bunton, who has recently resigned, are Pioneers formerly with The C. D. & P. Telephone Company.

A Novel Telephone Exchange

The town of Mound Bayou, situated on the main line of the Yazoo & Mississippi Valley Railroad a few miles south of Clarksdale, is inhabited entirely by members of the negro race, says *The Cumberland Telephone Journal*. It has a population of about 1000 and is located in a rich agricultural section of the delta.

The telephone exchange just opened will start with nearly a hundred subscribers, and will be distinctive in that it is the first telephone exchange in the United States built exclusively for negroes. It will be operated as a branch to Clarksdale.

Mound Bayou has a bank, hotel, municipal offices, with mayor and councilmen, railroad depot, post office, police and comfortable residences and business places, but it has no white inhabitants.

Baltimore Division**J. R. BROHAWN, Division Correspondent**

One of Baltimore's new and progressive department stores has inaugurated an all-night shopping service by telephone. A few days ago the *Baltimore Sun* printed an exceptionally entertaining news story detailing the imaginary experience of a young woman who awoke at 2.00 A. M. and stole downstairs to do her shopping before the other members of the family had begun their daily routine. The day after the story appeared it was reprinted as one of the store's advertisements. At present this firm has a private branch exchange with four trunks and 40 stations.

The following letter was received by the Baltimore Cashier:

Permit me to thank you for good service during the time I was absent, and for carrying my account of a slight balance an unusually long time.

I am enclosing check for bills to date.

This letter was acknowledged by telephone, and the subscriber further stated that the service was so excellent and the operators so courteous that he could not let the opportunity pass to thank the Company.

The following letters received in the Baltimore office are proof that some of the employees are endeavoring to carry out the practices set forth in the numerous items appearing in THE TELEPHONE NEWS on the subject of "Courtesy:"

I am hoping you have not forgotten "the little lady in black" who called upon you in June, and to whom you were so kind and courteous, promising to install a new telephone with an extra loud bell because of my deafness, upon ten days' notice.

The home-coming time has arrived, and I write now to ask you to fulfill your promise, and by a new telephone and extra loud bell make me very comfortable through the winter.

My apartment is in the Severn, and I would like the telephone placed on the other side of the bureau in the hall, near the library door. The lady in the office or my maid can designate just where. I am sure you will send good workmen and have the job as fine and satisfactory as one as was done by your predecessor.

Thanking you for your courteous interest, I remain,

Another read like this:

I think it is due to the two men who put new telephone wires in this house last week to let the Company know that I have never had such courteous, obliging and considerate workmen as they were in my house.

BARGAR.

Hagerstown District. Large contracting firms always consider the telephone a valuable help. Work on the Baltimore and Ohio Railroad yards at Cumbo, W. Va., was not started until a Bell telephone was placed in service. It cost the firm about \$90 to build the line, which will be abandoned when the contract is completed. This shows their estimate of the value of telephone service.

The first exhibit of Bell telephones at "The Great Hagerstown Inter-State Fair" caused much interest. Within our 18-foot space in the Main Exhibition Hall were three seven-foot poles, with pole brackets and wires attached. One telephone is in use, its loop run to the line wires on the seven-foot poles and through them to the

Hagerstown Exchange. Several pay stations are also in use at the Fair Grounds.

The Commercial Department at Frederick has obtained two private branch exchange applications during the past few weeks. The Morris Iron Works will have two trunks and eleven stations, while the other, at the handsome new terminal of the Frederick Railroad Company, will have two trunks and six stations. Frederick will have a total of six private branch exchanges when these two are installed.

REEDER.

Havre de Grace District. The moving of the Elkton Central Office from Main Street to North Street on September 23 was accomplished without any inconvenience to the subscribers. The change was made by installing a temporary board at the new location until the cut-over was completed; then the present switchboard was substituted for the temporary one.

There are 324 stations connected with the Elkton Exchange.

The confidence a Havre de Grace subscriber places in the telephone is shown by a request to the local office to remove the telephone from the dining-room to the bed-room on account of the many robberies that have occurred in the neighborhood. The subscriber stated that her husband would be away for several weeks and she would not be safe unless the telephone was near her at night. Instead of moving the station an extension station was placed.

GERBER.

Salisbury District. The Savageville Rural Line Company was organized on September 30. This company will operate seven stations and will connect with the Onancock Exchange, in Virginia. Savageville is a village consisting of two stores and five residences and when the work is completed the ENTIRE VILLAGE WILL RE BELL-TELEPHONED.

The Cashville Rural Telephone Company, extending north from our Onancock, Va., Exchange, has been completed and will serve 12 subscribers. The subscribers of this Company are very prosperous farmers and have constructed a substantial line, and are very well satisfied with the service.

The brick work in connection with the new exchange at Salisbury, Md., has been completed. The roof is being placed and the plastering and plumbing will begin at once. Two electricians of the Western Electric Company are on the ground and it is expected that the building will be completed by Thanksgiving.

CARTY.

Organization Changes

W. W. Bunton, Division Chief Clerk, Plant Department, Pittsburgh, has resigned to accept a position with the Pacific Telephone & Telegraph Company at Los Angeles, California, effective October 17. A. Bunton was appointed to succeed him.

Mr. Bunton entered the Company's employ, 22 years ago, as an operator in the old Hiland central office. On Friday evening, October 13, Mr. Bunton's most intimate friends in the Plant Department gave a dinner in his honor.

C. Pearce, Gang Foreman at Atlantic City, has been transferred to Tuckerton, N. J., and W. K. Buckingham, Combination Man at Tuckerton, is now located at Atlantic City.

Ira Lieb, climber in Line Crew No. 3, has been appointed repairman at Charleroi, Pa.

C. R. Bickerton, a lineman in Class "A" Crews, has been made repairman in the Plant Chief's forces.

Washington Division**R. G. HUNT, Division Correspondent**

The local plant of the Washington Tobacco Company was completely destroyed by fire lately. One fireman was killed and several others were seriously injured while attempting to extinguish the flames. Applications for three residence telephones were secured as a direct result of this disaster. Three business men whose establishments were in the immediate vicinity made unsolicited application within two days after the fire. Each one said that he had gone along for years without the service in his residence, but the tobacco company's fire in the immediate vicinity of his business place had brought the common danger so close to him that he had determined to have a telephone, in order that he might be apprised at once of a similar occurrence at his own place.

The capture of a suspected daylight sneak thief on Massachusetts Avenue, Washington, D. C., on October 14 is due entirely to the telephone. The maid saw the man's reflection in a mirror, and, hurrying to the telephone, summoned the police. In the meantime the man heard the click of the receiver as it was hung up. Joseph Proska was captured while fleeing from the street policeman, and when searched had a loaded revolver, several gold watches and \$76.88, mostly in silver, in his pockets. He was identified by the maid as the intruder whom she had seen.

Philadelphia Division**W. RITCHIE, Division Correspondent**

Three Philadelphia department stores, Wanamaker's, Gimbel Brothers' and Strawbridge & Clothier's, have met the growing demand for more extended telephone accommodations by installing more trunk lines. Strawbridge & Clothier added a new panel and 2 trunks; Gimbels have taken 20 additional lines, and Wanamaker's has augmented his present equipment by 40, making about 150 trunks in the latter store.

A young Spanish woman, unable to speak English, recently undertook to travel alone from Philadelphia to one of the neighboring towns. Unfortunately, she missed her way and arrived at a town some miles distant from her destination. The only English she could say was the telephone number of the hotel in Philadelphia where her brother was stopping. The station agent immediately called the number in question, and getting the brother on the wire soon relieved the situation.

On Tuesday, October 17, between the hours of 12 M. and 7 P. M., the time that the Athletic Baseball team were playing the New York Giants in the World's Series in New York City, 35,441 calls were recorded in the various Philadelphia central offices to Walnut 750, the North American Information Bureau. This is the greatest number of calls ever recorded in the city for the same period for any telephone number.

DREW.

Telephone Society News**The Baltimore Telephone Society**

Musical Union Hall, 847 Hamilton Terrace, near Biddle.

Wednesday, November 8, 8 P. M., sharp.
Speaker: C. E. Bryan, Division Manager, Baltimore.

Subject: "Fifteen Years in the C. & P."

Telephones in a Great University

(Continued from page 1)

suppose there are in a city the size of Philadelphia?"

"Well, our Company had over 124,000 stations in the city proper at the end of September."

It was the Doctor's turn to be silent. He looked hard at the ceiling and joined his finger tips as if in deep thought. Then he said:

"We seem to be pretty well represented in your Company's ranks, do we not?"

I assured him of the fact; told him the University of Pennsylvania was well represented in the fullest meaning of the adverb.

"That's fine!" he exclaimed, "and now tell me what we can do for you."

"You can tell me of what use Bell telephone service is in the University, and to what extent it is employed. I've an idea that it must be rather helpful to such a large educational institution."

"All right, sir—but what are you going to do with information of that kind?"

"Make an illustrated article of it for our Company's paper, THE TELEPHONE NEWS."

"Well, I'll tell you—I think your best plan is to go over and see Mr. Blank in Houston Hall. What he doesn't know about the University's affairs isn't worth knowing, and, better still, he can tell you more in an hour than I could in a week. I think he's the man for you to see."

So Mr. Blank was sought out; and a most accommodating person he is. Perched high in his Houston Hall aerie, he proved to have a veritable mine of information; and enthusiastic enough to find pleasure in delivering himself of his knowledge.

"I surely *can* tell you something about this old place," he said in answer to the question. "In what particular phase of it are you interested?"

"In the whole big proposition, but particularly in your telephone system."

"Particularly in our telephones. I suppose that means you haven't time for a little general history?"

"Indeed, no!" I'm afraid I almost threw the words at him. He laughed.

"Fair enough," he said. "I'll give you a brief sketch of 'Old Penn's' existence, and gradually work around to the part the telephone plays in its life to-day."

"It is the outgrowth, you know, of what was known as the 'Charity School,' an institution organized in 1740, and which had a building in the vicinity of Fourth and Arch Streets, this city. Almost a decade after that date, Benjamin Franklin, the founder of the University, issued a pamphlet called 'Education of Youth in Pennsylvania.' To the inspiration contained in this piece of literature can be traced the Academy which began its first session in 1751 in a building on Fourth Street, below Arch. The building originally was intended for the Charity School, but in 1755 the Academy was granted a charter converting it into a college with full power to confer the regular collegiate degrees. On May 17, 1757 its first commencement was held and the degree of Bachelor of Arts was conferred on seven men. In 1765 the first school of medicine in America was made a part of the College. Later, in 1779, a new organization, chartered as 'The Trustees of the University of the State of Pennsylvania,' took over the College; but the original state of affairs was restored ten years later. However, in 1791 another charter was granted to the Trustees of the Charity School and Academy, and to those of the Uni-

versity and of the College, under the incorporated name 'The University of Pennsylvania.' During these early days the institution was intimately related to the events which were taking place in the history of the colonies at that time, and later, its welfare was vitally concerned in the war with Great Britain. Many 'Penn' men took leading parts in the struggle for independence, and among the signers of the Independence Declaration were ten men who were graduates or founders of the University.

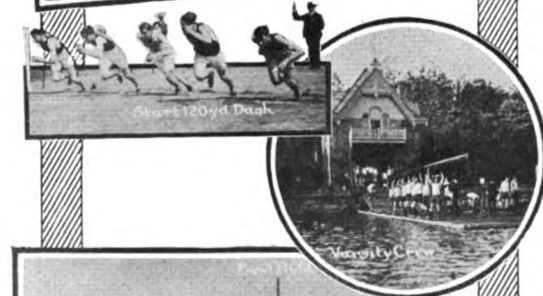
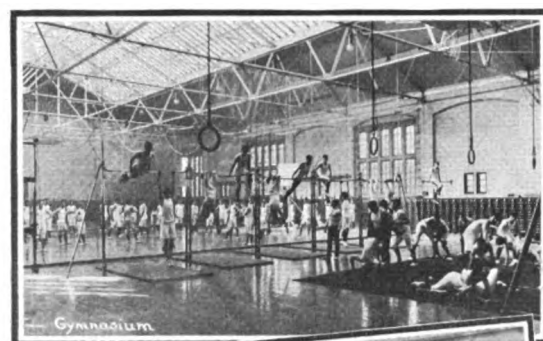
"The University buildings were transferred to Ninth and Chestnut Streets about 1802. Here it remained until 1873; but, finding itself situated in what was then the most congested section of Philadelphia, it removed to its present home in West Philadelphia. Its growth in this location really has been remarkable. One year after we came to our new home, in 1874, the University Hospital was built; the next year the Towne Scientific School was added, and then, almost without interruption, came the Department of Music, Department of Philosophy and Graduate School, Department of Veterinary Medicine, the Veterinary Hospital, the Department of Physical Education, the Department of Archaeology and University Museums, General Library, Training School for Nurses, Wistar Institute of Anatomy, Teachers' School and the Summer School. To-day the curriculum includes practically every branch of what might be termed 'higher education,' and of scientific research.

"There, sir, that's about all there is to be told in a general way. And now, if you're not already tired to death of my talking, we'll try to tell you something about our telephone equipment."

"For the life of me I can't tell you exactly when the first telephone was put in use at the University. I don't know anyone around here who can tell you that, exactly—but you may be sure of this, the University of Pennsylvania was one of the very first telephone users in the city of Philadelphia and in the whole country. You must not forget that the 'Centennial,' in which Alexander Bell's invention was recognized, was held within a short distance of this very spot. Another thing, the University has one of the best collections of early telephone instruments, showing their crudities and inefficiencies, of any museum or institution in the country. Just now it is on view in John Wanamaker's electrical display, on the eighth floor of the Philadelphia store."

"Here's a point that I do remember, however, about our telephones: Nineteen years ago, when I first came here, there were only three or four telephones in the whole place. One of them, I believe, was in College Hall. Every time I wanted to do any telephoning—rain or shine—I had to chase over there and go through the usual ritual with the operators of that day. I might say in passing that the service we received was no better than that which people all over the country were then putting up with. Most people called it 'rotten.'"

"But we've grown some since then, and I think our telephone improvement has fully kept up with our general growth. For instance, instead of those two or three telephones which made up our equipment about twenty years ago, we now have four private branch exchanges—the two in College Hall and the Hospital totaling nearly 200 stations. And you can take my word for it, there's no idling at those two 'boards. Then we have two small switchboards, one in the Law School and the other in the Museum. I don't think there's a building on the campus that isn't telephoned. And, of course, there are direct line stations—connecting right with your 'Preston' and 'Baring' offices—scattered here and there all over the community. We have no kick



Athletics at "Penn." The Lower Illustration Shows One of the University's Famous "Bowl Fights" in Full Sway.

that I know of, about our service. It's always there.

"Oh,—I almost forgot to mention the special service we have on Franklin Field. At every important game the big press box is filled with newspaper representatives, who either telephone or telegraph their stories to their papers—and thus get them in the late evening editions. Very frequently, too, the visiting college men arrange for a long distance line straight through to their home institutions and report the games, play by play, during the whole contest."

The telephone man began to express his thanks for all this interesting news, but the Pennsylvania official interrupted.

"Forget it," he said. "Don't you want to take a look around and see some things with your own eyes before you go?"

"I'd surely like to, but I'm afraid I'd not gain very much of value if I didn't have a competent guide. And it looks like a rather big job to ask a man to tackle."

My informant smiled. "If you care to class me as competent, I'm your man. Come along—let's have a look."

Thus began an illuminating tour of the University's grounds and buildings. First we vis-



During Games a Single Operator on the Side Lines "Ticks" the Plays to a Megaphone Man at One End of this Press Stand at Franklin Field. This Man, in Turn, Calls Them Out to the Writers. In the Illustration the Nearest Figure is Telephoning Details of Penn-Brown Game, Oct. 21, to Providence, R. I.

formed, free of charge, over 30,000 operations in dentistry. Some of these were comparatively simple treatments, but they varied all the way from the commonest dental work to the most costly and complicated.

"This is made possible," he explained, "by a fund set aside for the purpose—and no worthy person who applies to this department for expert dental service goes away unattended."

He pointed out the increasingly great importance—in the eyes of scientists, especially—of oral hygiene. With a series of striking anecdotes and illustrations he told us about the manner in which one's whole mental, physical and moral welfare is affected, strange as it seems, by the condition of one's teeth. It was one of the most instructive talks we had in our whole tour of inspection.

Right across the way from this department stands the mammoth Engineering Building—the department from which this Company recruits many of its brightest minds. Classes were just being dismissed for the usual luncheon recess as we walked through these halls, and for that reason we didn't linger more than a few moments—just enough to get an idea of the broad scope of work done here.

We hurried along to our own luncheon. I had no idea where we were going, but earlier in the day my mentor had given me a cordial invitation to accompany him, and after accepting it I had forgotten that such a thing as luncheon had to be eaten. As the Law Building loomed up in front of us, however, I learned of our destination. We were to sit down with one of the faculty lunching clubs, composed mainly of members of the Law School faculty, who daily gather around a big table in one of the rooms of their building. It was a most enjoyable little affair. My guide saw to it that I was placed beside a man who knew the Law Department from alpha to omega. So, with laughs at the witticisms which flashed back and forth between the keen men seated around the board, I managed to find out that the "Penn" Law School gives ground to only one other similar institution in the country—that of Harvard. Many people, they told me, give Columbia second place on the list, but Pennsylvanians stand ready to prove that the honor is their's. The enrollment this year is about the same as usual, some three or four hundred students. In the splendidly equipped building are many points of interest. Among them are the Moot Court Room, the Bidle Law Library of about 50,000 volumes, the Museum of the Pennsylvania Bar Association, and several beautifully decorated hallways and staircases. A large lot adjoining the building is occupied by the University Tennis Association with six excellent tennis courts.

Our path now led us to the Wistar Institute of Anatomy and the University Hospital. The anatomical building is a memorial erected to the memory of Caspar Wistar, who was Professor of Anatomy at the University from 1808 to 1818. The building and endowment that accompanies it are the gifts of General Isaac J. Wistar, a descendant of Dr. Caspar Wistar. The collections of anatomical specimens, the splendid system by which they are displayed and the work that actually is being carried on in this department all tend to make it a place of exceptional interest. The Hospital—or better, hospitals,—are composed of quite a number of buildings joined one with the other by covered passageways. There are six buildings, all told. They contain six amphitheatres and 14 wards, with a total of 350 beds. The staff of the hospital is composed of over 100 physicians and almost an equal number of nurses. Right in the main



Most of the University's Telephones are Served From This Two Position Switchboard, Located on the Second Floor of College Hall. After 11 P. M. Certain Stations are Trunked Through to the "Baring" and "Preston" Central Offices.

ited the oldest building in the campus—College Hall, built in 1871. It's a massive stone building of the architecture in vogue a half century ago. Its exterior is beautifully softened by age and the luxuriant ivy that hides any lines which might not harmonize with neighboring buildings. Upstairs we found the heart of the University's telephone system—the two-position common battery switchboard that serves many of the telephones on the campus. A very busy 'board it is, too. The operator on duty told us that usually they are busy from 8 o'clock in the morning until 11 at night, when the exchange closes.

Then we walked down through the Light, Heat and Power Plant, another vine-covered building of generous proportions, in which the electricity and heat for the community is generated. This building frequently has been pointed out as one of the few smoke-producing plants in the city that does not produce. The University men in charge have experimented long and strenuously with devices intended to consume the plant's smoke—and they seem to have succeeded.

Across 34th Street we went from here, and had another look around Harrison Laboratory, the building in which formerly I had called upon the "learned doctor." "Penn," it should be remembered, leads nearly all other universities in this line—chemistry.

Thence we went over to Dental Hall, and by good fortune happened to catch its busy Dean at leisure. My guide explained the purpose of our visit and the Dean immediately uncorked his enthusiasm for his work—a feature that is remarkably evident in every University department. He took pains to tell us something about the really wonderful work that is being done in this branch. Just to show what his men are doing, he cited the fact that last year they per-

building there's a busy one position branch telephone exchange, with nearly 100 stations connected with it. Extensive improvements are continually being made and the institution's place among the deservedly famous hospitals of Philadelphia is well to the fore.

The Wharton School of Finance and Commerce came next. It is one of the newer branches of university training and was founded by Joseph Wharton in the early 80's. As might be expected, this department trains men and women for practically all of the higher branches of commerce, such as insurance, transportation, consular service, and others of a like character.

After this we stepped out of academic life for a short time and gave the spacious Gymnasium Building our attention. The "Gym" faces both on 33rd Street and on Franklin Field. This also is one of the newer buildings of the collection: it was erected in 1903-4. Like many others on the campus, the architecture is a modification which has come to be known as "English Collegiate" style. It is entirely fire-proof and to a great extent is built of steel and concrete. Accommodations for all students who are gymnastically inclined are ample. The spacious swimming pool on the ground floor of the main building is one of its most attractive features. The pool is 100 feet long and 30 feet wide; nine feet deep at one end and four feet at the other. In the towers and wings of this building there are almost 3000 lockers for students, professors, athletic teams and others. The entire equipment of the place,—training house, apparatus, baths, everything—is complete and up-to-date.

Just across the way from Franklin Field rise the graceful walls and balustrades of the Museum Buildings. These were begun in 1897, and those that now are finished are but a small part of the comprehensive plans that have been made for one of the largest museums in the world. When finished they will cover 12 acres of ground, and the buildings alone will run up to a cost of sev-

eral million dollars. The architecture calls for a second comment. They say it was inspired by the style that is typical of Northern Italy. This is particularly in evidence when one notices the rounded archways, the wide mortar joints, the exterior ornamentation of brick and marble mosaics, and last of all, the tiled roof. Competent critics have said this building presents one of the most successful and beautiful masterpieces of architecture in this country.

To the contents of the Museum might well be devoted several volumes. It contains specimens of the now famous excavations made by representatives of the University. This probably constitutes the most important collection in the place. The curios and specimens from other corners of the earth are scarcely less important and asurdly no less interesting. Some of them are the collection of papyri, including the oldest known fragments of the gospel of Saint Matthew; the Drexel collection of original ancient sculptures, the Wanamaker collection of bronze reproductions of Pompeian and other discoveries. Then there are statues, mummies, sarcophagi, door sockets, and so on, that date from 400 B. C., to the Greek-Roman period of history. In another section are the wonderful American specimens, such as the Colorado cliff dwellers exhibit, the Mexican and Central and South American exhibits, the Drexel fan collection, the Frismuth collection of musical instruments, the coin collection and others almost too numerous to mention. This building, by the way, has its own private branch telephone exchange.

From here we sought the dormitories, and in turn traversed the "Big Quad," the "Triangle" and the "Little Quad." The "dorms" give one an intimate idea of the way the students live. At "Penn" there are about 30 dormitory Houses—as they call them. The buildings are sub-divided in this way just as at Princeton; there are many entrances, each with a separate name. Here each entrance is called a house, as, Franklin House, Lippincott House, Smith House, Provost's Tower, and so forth. The buildings themselves are in the prevailing English Collegiate style and are strongly suggestive of the old English institutions of Oxford and Eton. The three floors of the "Dorms" are divided into single and double rooms and suits. Telephones are located in accessible spots in each house; many rooms have private stations. Many of them have open fire places and on every floor of each house there is an adequate equipment of lavatories with hot and cold shower baths. One of the most striking features of the "Dorms" is the system of student self-government. By this plan the discipline and decorum of the houses is maintained at a high standard.

Next we inspected the Medical Department with its sub-divisions, the Vivarium and the Botanical Gardens. From this department the first medical degree in America was conferred in the year 1768. Under the heading "Medical Department," it should be understood, are included the Medical Laboratory, the Wistar Institute of Anatomy, the Laboratory of Hygiene and the Hospital System. Amphitheatres and operating rooms abound, and one can easily spend days simply in looking through this department as it merits.

It was gradually growing dark by this time, but my guide suggested that we make a clean sweep of the place by visiting the one remaining large branch, the Veterinary Department. It was but a short walk from the Medical Building and proved to be entirely worth the additional effort. The main building, as it stands at DeLancey Street and Woodland Avenue, corresponds in architecture to the majority of the campus buildings and is quite extensive in its dimensions. On the first floor are public wait-

ing rooms, pharmacies, surgeons' rooms, rooms for canine clinics and the hospital of the building. In the series of buildings the School and Hospital Departments are entirely separate; everything connected with anatomy and post mortem work is grouped alone. In addition to the features mentioned there are large halls for horse clinics, forges, sterilizing rooms and rooms equipped with x-ray apparatus. The State of Pennsylvania has given possibly the best recognition of this school's value, for it has established here a large station for the use of the Commonwealth's employees.

Our inspection trip now approached its end. As we tramped back to Houston Hall, the big roomy students' club house, my guide asked me if I cared to climb the stairs to his office once more and hear of some additional points of interest.

"That is, if you're not too tired," he concluded. "The 'too-tired's' have it," I answered. "I think we have covered more than enough as it is and I'd like to go home now and try to write you up as you deserve."

Spare Pair Banquet

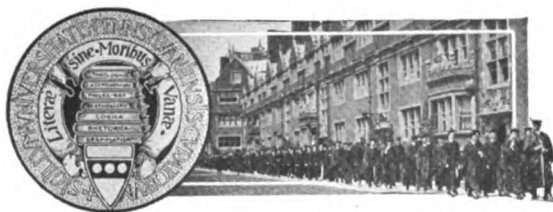
On the evening of October 19, the members of The Spare Pair Society, of Philadelphia, held a banquet at Kugler's main Banquet Hall.

All regular business was postponed for the time and the evening was given over to the spirit of good fellowship. The tables were beautifully decorated and arranged in such a manner that each member had an unobstructed view of the stage, where an orchestra and vaudeville artists entertained throughout the courses. The pages of the menus were made from blueprints with a double fold light blue paper binding.

In response to C. L. Meixel's set toasts, S. B. Williams spoke of "Our Society;" M. L. Lafferty gave some new ideas on "Our Job," and J. A. Chapman, of the American Telephone and Telegraph Company, spoke enthusiastically on the subject, "A. T. and T. Company Relations." W. A. Wurst followed with remarks on "An Old Saying." J. H. Carroll responded to "Baby Members." L. C. Gainor was the last on the list of formal toasts and aroused enthusiasm by his excellent address on "The Ladies."

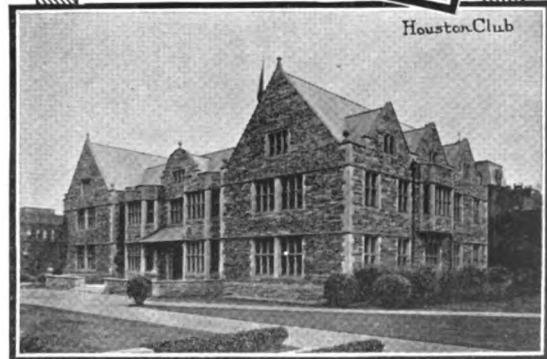
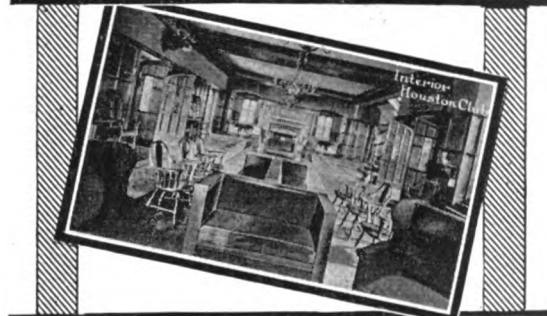
At that point three hearty cheers were given for F. W. Figner, Chairman of the Entertainment Committee, to whom credit was due for the success of the evening's programme. The meeting broke up about 11 P. M. with the singing of "Auld Lang Syne."

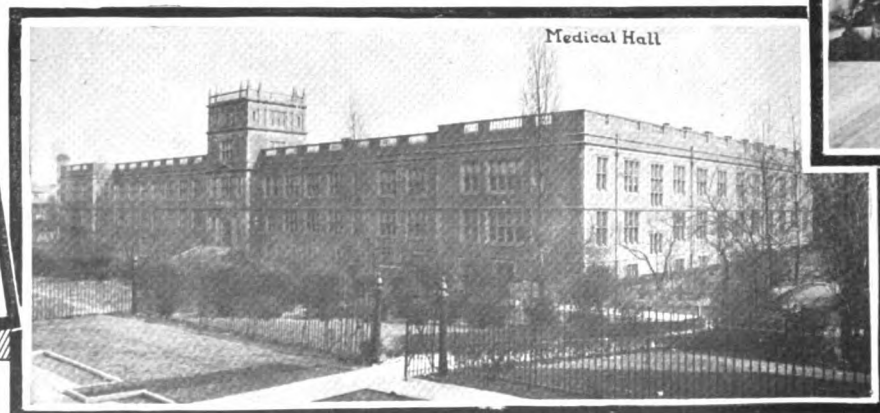
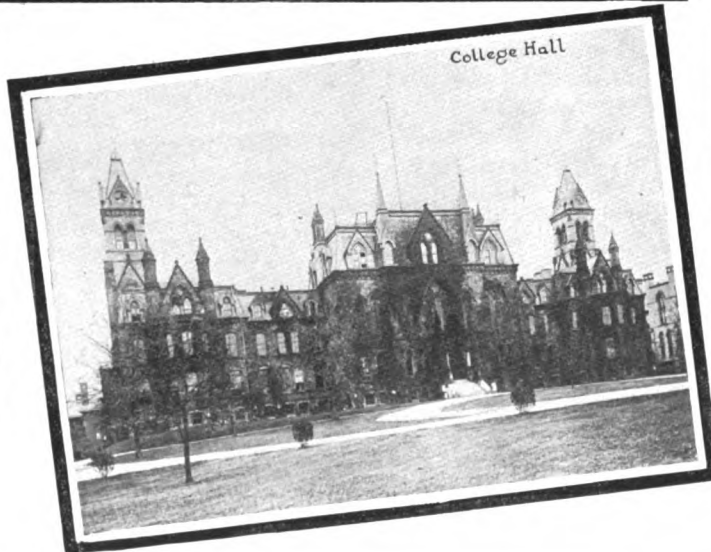
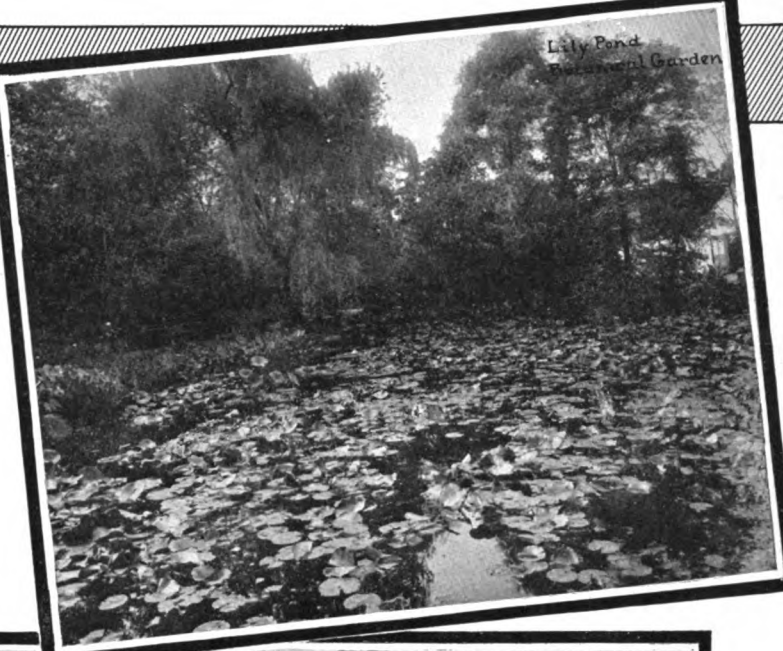
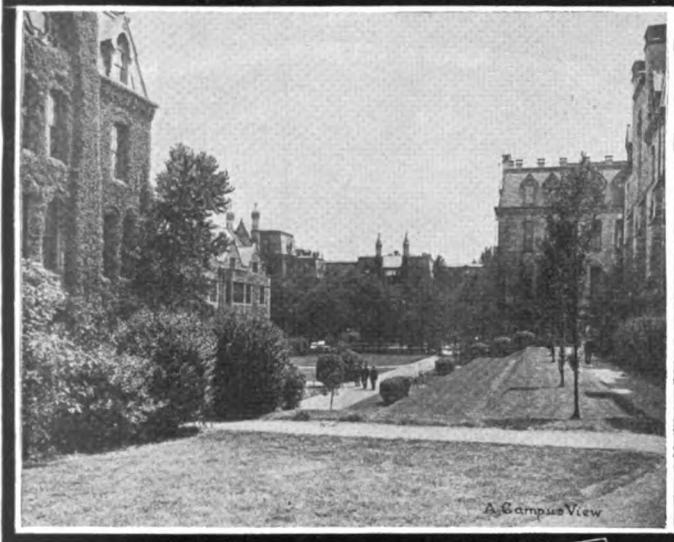
On October 20th the annual sales dinner of the Pittsburgh house was held at the Ft. Pitt hotel. This being on the eve of Mr. Thomson's departure, the gathering was in the nature of a farewell dinner. About 50 Western Electric men attended.



The Bell Telephone Company of Canada has recently inaugurated long distance telephone service between Montreal and Fort William, Ontario, nearly a thousand miles distant.

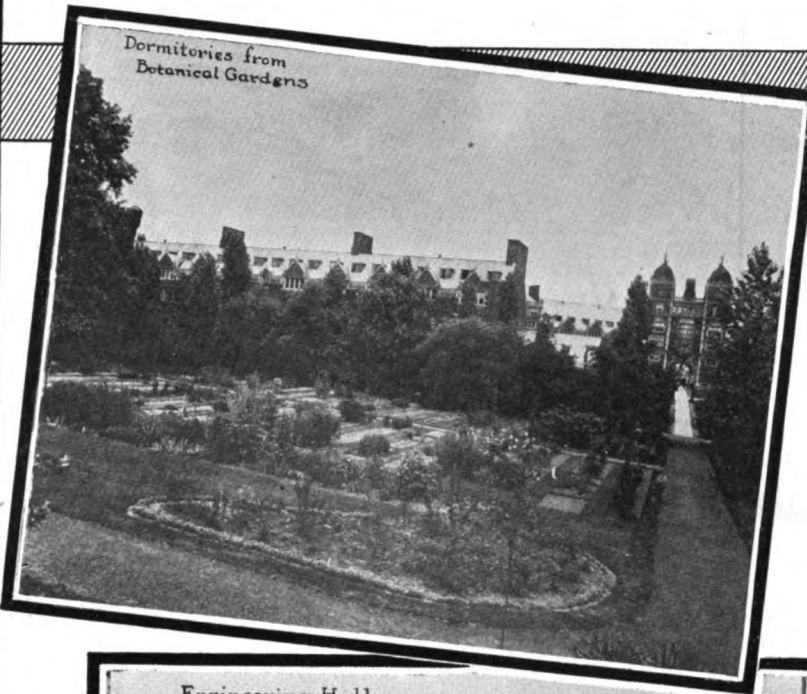
The Western Electric Company now has 26,000 people on its payrolls.







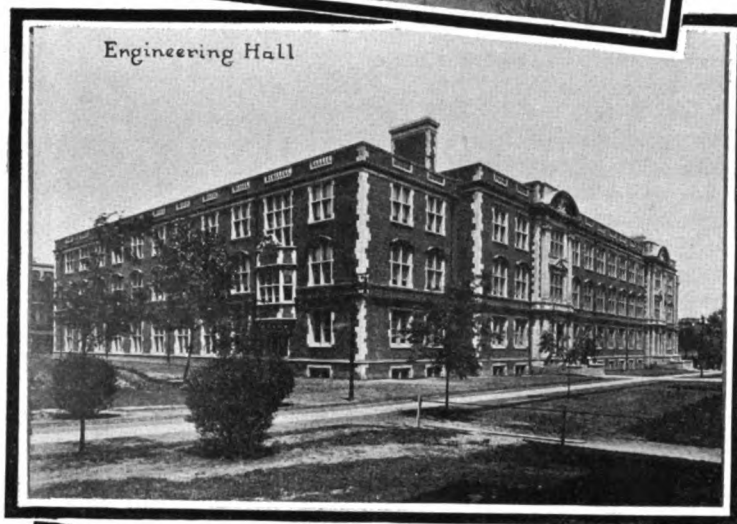
the Dormitories



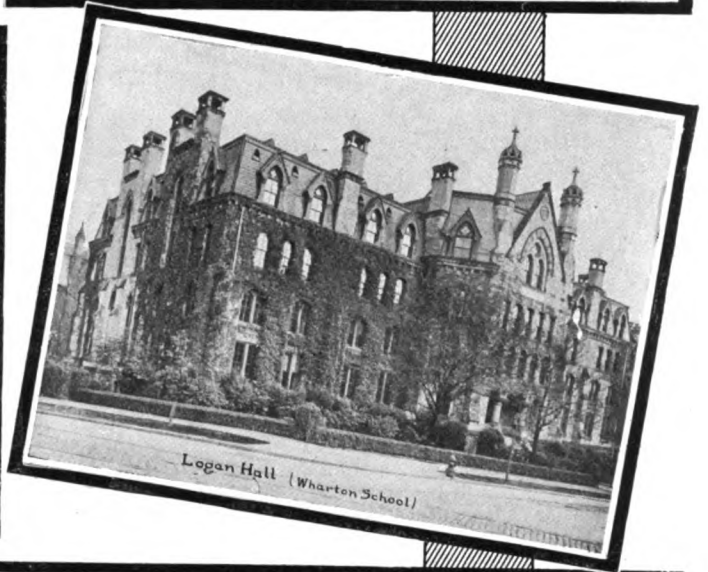
Dormitories from
Botanical Gardens



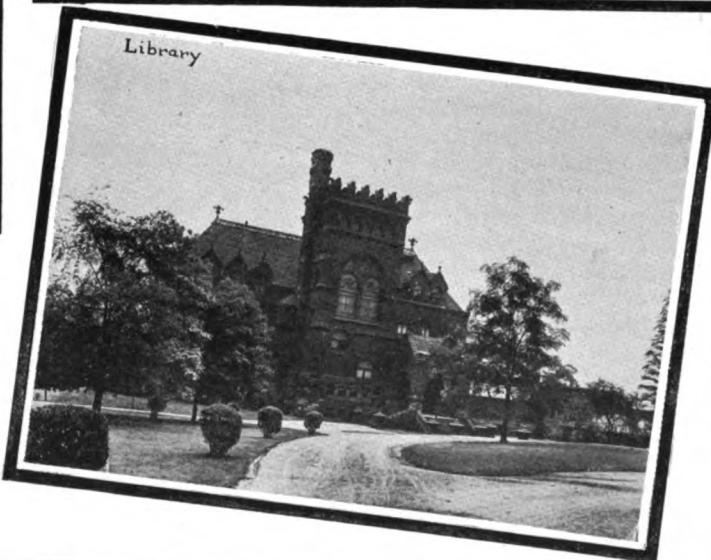
Hamilton Walk



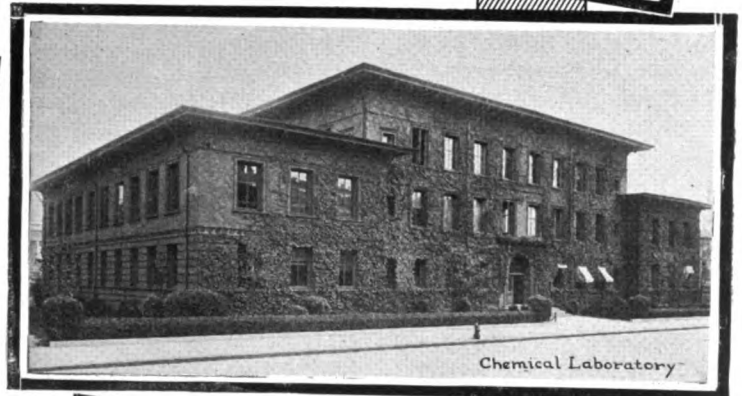
Engineering Hall



Logan Hall (Wharton School)



Library



Chemical Laboratory



Hall



Veterinary Building



'95 Memorial Gate

The Bell in the Fairmount Park (Philadelphia) Motor Races

The Bell telephone played an important part in the automobile races held in Fairmount Park, Philadelphia, Monday, October 9. They were the fourth annual races under the auspices of the Quaker City Motor Club.

The course, which was eight and one-tenth miles long, was well distributed over hilly and level ground, with both gradual and sharp curves. It is probable that the S-shaped turns and steep inclines were adapted to test the strength of machines and endurance of drivers and mechanics as severely on this so-called helmet-shaped course as on any course in the country. Twenty-five laps were required to complete the endurance test, and of the eighteen cars that entered, all but four ran the distance of over 200 miles.

Of the types of cars entered there were three *Nationals*; the other makes had either one or two cars each—Fiat, Lozier, Mercer, Ohio, Cole, Case, Benz, Mercedes and Bergdoll.

It was stated by the newspapers that 300,000 people witnessed the event, in spite of the fact that it had been postponed from Saturday, when a much greater number would have been free from regular business duties. Some of these racing enthusiasts began to assemble very early in the morning, although it was known that no speeding would be permitted on the course that day until twelve o'clock.

When the racers began to line up as the noon hour approached, the crowd everywhere along the line was enormous. At the starting point, however, it was quite impossible for late comers to see even the tops of the heads of the car occupants.

Starting on the Concourse in front of Memorial Hall (which, by the way, is a permanent building erected during the Centennial Exhibition), the cars proceeded east, then around the Smith Memorial entrance into the dangerous Sweet Briar curve, thence to the West River Drive, to the Neil Drive (another dangerous point), to Belmont Avenue, to Wynnefield Avenue, around George's Hill, and then passing the Temperance Fountain, they again covered the Concourse, where the judges were stationed.

The cars were started at twenty-second intervals, and Erwin Bergdoll in his large six-cylinder Benz car showed almost at the start that the lead which he soon gained would be difficult to beat. In the very first lap he broke the record for the course by completing it in seven minutes, thirty-four seconds. In his second lap he covered the course in seven minutes, twenty-eight seconds—faster than any other driver during the race. These trips gave him the title of "Speed-Boy" and did much toward putting him in the lead. His time for the entire twenty-five laps was three hours, eighteen minutes and forty-one seconds, or about two minutes faster than any other racers. Bergdoll is only twenty-one years old. Len Zengle in the *National*, Spence Wishart in his *Mercedes* and Ralph Mulford in the *Lozier* were, perhaps, the closest rivals of Bergdoll throughout the race, and it was not until the decision had actually been given that spectators knew who had won.

One of the most spectacular parts of the race was the speed with which repairs were made by many of the drivers and their mechanics. Tires were changed in forty-seven seconds and cylinder trouble and other problems caused delays of minutes only.

The rules required each car to carry a driver and a mechanic. The latter only was permitted to look behind. His duty was to pump oil for the gearing, to advise the driver of the



Telephone Signal Station at Fairmount Park Motor Races.

approach of other cars and of the number of laps made, to repair or change tires or other defects. When the car takes a turn at high speed he must hold on to a hook and swing out from the higher side of the car, so that the weight of his body may be added where most needed and cause the skidding tires to grip the track. At some points the surface of the track was cut five or six inches by the severe turns of the speeding cars.

The race itself was entirely without accident, but on the previous Wednesday Harvey Ringler, while cutting around the river drive in his *Mercedes*, ran through the railing and struck a tree. His eye and arm were injured, and his mechanic sustained a broken leg. At the "Dip of Death," near the northern end of the course, Ralph Mulford during the race threw off his mechanic on a soft stretch of turf, but no serious result occurred. In less than a minute the car was on its way again with both occupants.

The average number of miles per hour has increased during each of the four years that the race has been held, from 47 miles in 1908 to

60 miles in the race just held. The cash prizes in 1911 were \$6500, besides a number of other valuable ones offered by manufacturers to racers using their supplies.

In order to accommodate the greatest possible number of spectators, five grandstands had been erected along the Concourse. The receipts from the sale of seats and "parking spaces" were donated to hospitals and charitable institutions. Along the Concourse also—the section of the course reachable by automobiles—were "parking places," the name given to boxed spaces assigned to individual owners of automobiles. In addition, the sloping nature of the park made unusually good "natural grandstands" for the large number of spectators who were less fortunate. The heavy rains of Saturday, October 7, had made the track more free from dust than during any of the preceding races. There were hundreds of ordinary cameras on duty and a number of motion-picture cameras. As each car tore along the track the enthusiastic crowd saluted admiringly and its number and time were registered on dozens of score-cards.

BELL TELEPHONES AT ALL POINTS

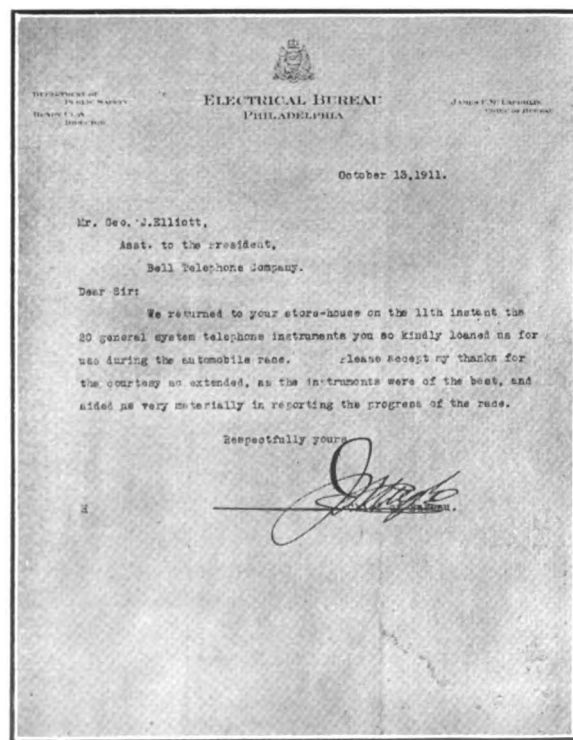
At twelve important places along the eight-mile course elevated "booths" had been erected by the Philadelphia Electrical Bureau. They were fastened about twelve feet above the ground to trees and poles. Five were located on the outer and seven on the inner side of the course, the majority being at dangerous points along Sweet Briar curve, the Neil Drive and places where the largest crowds were anticipated. In the grandstand, in the repair shop and in the emergency hospital-tent Bell telephones were also placed.

Two Electrical Bureau operators were on duty in each of the booths—elevated square platforms—and were supplied with megaphones to announce news of accidents and anything else of interest to the public. All stations were cut in on the same circuit in order to advise all simultaneously of any news given out to any station. Booth No. 2, on the inner side of Sweet Briar curve, is reproduced in this issue.

Every station was connected with the Electrical Bureau switchboard in City Hall. It was possible to call any hospital or for these elevated telephone operators with megaphones to communicate with any of the seventeen patrol wagons or larger number of ambulances located around the course without delay. Six linemen were stationed within reach to clear any trouble that might develop. It required twenty-two miles of wire to complete the system. There were stationed around the track over two thousand policemen in order to keep the public from crossing it and to see that they remained at safe distances from the danger points.

Inasmuch as the cars, some of which were of ninety horse-power, ran at from forty to ninety miles an hour, it may be appreciated that not only the riders, but the near public assumed a certain amount of risk. The telephones, prepared to call ambulances, aided in reducing this risk, especially along the Concourse and the West River Drive, where cars tore through space and regained time lost through tire changes or other delays.

Thousands of interested Bell users throughout the city and nearby towns, unable to visit Fairmount Park during the race, were kept in touch, lap by lap, as it proceeded, by calling the *North American* and other newspaper offices, several of which had contracted for lines direct to the course. Almost as soon as the contest of speed was ended, editions of the evening papers were on sale, giving the name and time of the winner and other details.



Some Recent Steps Along the Line of Improved Supervision.

Burdett Stryker, Plant Superintendent,

Harrisburg Division.

IN the Organization Bulletin of our Company we read—

"It is the purpose of the Companies to furnish, within the territory covered, adequate and efficient telephone service at reasonable rates, properly maintain their plants, pay a reasonable dividend to the stockholders and properly care for employees.

"In order to furnish adequate service it is necessary to provide plant sufficient to take care of the traffic at its heaviest point. To utilize the plant properly and to get the proper result require efficient organization.

"The extent of our territory, the value of our property, the importance of our service and the widely different parts served by our Companies, and the changing demands made upon them, make necessary a carefully planned and a properly developed organization."

This Company's organization provides for the classification of the details into groups, and each group is divided into a department, the departments becoming the Company's organization, the machine through which the business of the Company is conducted.

The Plant Department's duties, as one of the inter-dependent of the organization, cover, among other things, responsibility for construction of the plant and repairs, the preparation of plans and specifications for estimates covering the various types of plant, completion of service to the subscribers, disconnections and changes, and the maintenance of the plant, it being their duty to have corrected all defects that show up from any cause or source. It is theirs to note, by personal inspection, the condition of the plant in their charge and to see that such periodical tests are made as are necessary to insure its maintenance in a satisfactory condition.

For a Plant Division of a company to carry on its work successfully, it must first have the right kind of an organization, one that is wholly suitable for the particular work to be accomplished, and one that is flexible enough not to be ruptured when widely varying conditions are to be met, due to local conditions prevailing in different places, and this, it can be well said, is found in our functional organization.

It is a trite saying, "Organize, deputize and supervise," the result being, if these things are properly done, that we secure efficiency, and this great power—efficiency—is what we most need in our work of to-day, for the question of the general type of organization itself has been quite thoroughly thrashed out and fully determined upon.

Those in supervisory capacities know pretty closely the things that are believable and that look right when set up on paper, but there are some things that, while they seem to ring true, yet at the same time are not convincing. It is, therefore, highly important, by proper analysis, to go into the questions so fully that the real answer will be convincing, raising a red flag against such items until they are cleared up.

There was a time when a Plant Superintendent could spend a large amount of his time in the field; to-day he spends less than formerly. Therefore, his deputies must be stars, bright and shining in all kinds of weather, deputies who not only tell men to do things, but see that men do things, deputies who are competent to judge that the things being done are properly done, deputies who are willing to camp out on the job until they get the right answer on any particular

thing, and thus get matters lined up so that general supervision will later suffice for that particular thing to be done, giving ample time to do other useful work, and deputies capable of sizing up men right from the start to know what their capabilities are; to determine if they are high grade timber that will not be hurt by planning down or rounding off the edges, and that will season well and last.

Supervision that appeals very strongly to me is the supervision of following any carefully planned layout of construction, whether it be conduit or cable work, the erecting of a building, or anything of the kind, so that from its very start it will be so well supervised that no important errors can enter into or anything be omitted in the actual work of construction, and that, upon completion, it will not only be a completed thing in a general way, but satisfactorily completed in all of its manifold details.

You might say, "Oh, well, proper administration will take care of all of these details, whether it be a great building, a pole line, a cable plant or any such thing." And I might say, "Yes, so it will, but only in a general way." As yet I have been unable to find any efficient and satisfactory way to eliminate, to any appreciable extent, and yet get the proper result without the aid of this thing called "Supervision," notwithstanding the fact that some one has said that "The supervision is best that supervises the least," which I interpret to mean that the work which is best planned, well manned and properly administered requires the least supervision. One of the first things that should enter your mind when a thing is to be constructed is—How are you organized to supervise that particular job? Who are the men who will do the actual supervising and building? Are they especially fitted, by experience, for the particular thing to be done? And will the completed work be as you expect it should be? And your answer will be, "Yes, if your detail plans are right, the men competent and your supervision rigid."

All of us have done special supervision on estimates and we find a marked degree of difference between the capabilities of men in getting work done. To wit:

A certain cable job was picked out to determine what could really be done on the planning end and the directing of the actual construction if done by one thought to be fully competent in all respects. The man who was selected to do the directing and planning in this particular case was the Supervisor of the District, and he personally mapped out to the Foreman the various moves to be made, but in advance and along the following lines:

First. A careful examination was made of the plans and work orders to determine that the work could be completed as planned and that there were no missing links.

Second. Checking up all of the right of way involved for new pole locations and guying and verifying that all details had been satisfactorily closed.

Third. Arranging in advance with Electric Companies to make necessary changes in their plant, in order that Telephone Company's plant, when erected, would be reasonably free from interference and hazards.

Fourth. Having the material list checked to be certain that all of the material needed to start the job was on the site, and that deferred shipments were en route and scheduled to arrive at

the proper time for use, so as to prevent hurried recalls to the warehouse for material short on the job.

Fifth. Having all tools, blocks, tackle and other paraphernalia examined to assure that it was of the required kind and in proper condition for instant use.

Sixth. Assigning the proper number of men to the job, each man knowing his place and work on the job from the start.

Now, this seems like a long story, but the delving into these details took but comparatively little time, and when the job was being done there was a limited train in action on a broad gauge track with no block signals set against it and of such forceful speed that it just had to arrive, and, tell me, if you will, how could it fail to arrive on time when so planned?

The job was completed at an "amazingly low figure," so much so that when the Inspection Report was written up for the closing of the estimate we could not find a logical reason for asking for the amount of money appropriated and having spent so little, and, mind you, the appropriated amount was not above the standard average cost figures for the work to be done, and the job, as completed, was not below the average in ease of completion, but the saving on labor, teaming and incidentals ran the estimate between fifteen and twenty per cent. under, and all of the work planned to be done was done. Well, in giving a reason for the under-expenditure, it was written in the Inspection Report that the work was done "under very favorable conditions." While this was true as to favorable conditions, it did not ring out true and clear as to the real reason; it was not a convincing statement, and when I had the exact facts in the case I felt more like recording in the Inspection Report "That the Foreman had most intelligently supervised under the direction of his Supervisor, and that it was so well done that \$300 was saved on one little job by their skill in prosecuting the work."

I bring out this illustration to show the necessity of having stars on the directing work. Men of power. Men capable of being respected and liked by their subordinates, and when we get men respecting and liking their bosses they work like clock-work, never missing a tick, and by getting the right kind of deputies and having them look ahead and schedule the details of the job, tons of money can be saved and better work will result.

This is the kind of supervision that is needed on every hand; the kind that so plans that there are no failures.

The administrative work of the Plant Division goes forward in a general way along approved lines so far as supervision is concerned, but, in order that we may make improvement in the "art of doing things," obtain better methods, find shorter cuts and more convenient avenues for getting the real answer, special supervision has been given to certain important "links in the chain of work" where it appeared that it could be most profitably applied, in order to secure quicker action, better work, greater efficiency and a better balanced condition of the several matters under consideration. Some of these items that have recently been specially and constantly followed for improvement in the "art of doing things" are—

Line Order Supervision

In June Mr. Nowell sent out a memorandum received from the Second Vice-President, in regard to furnishing information to the Commercial Department, which will be of real assistance to them in supervising the relation between the business which they are securing and the existing telephone plant. Requesting the Plant

Department furnish the Division Manager with such available information bearing on this point, obtaining their ideas in the matter with a view to coming to a conclusion as to the kind of information which can be readily secured and which will be most useful to the Commercial Department.

In Mr. Spalding's memorandum he cited that certain reports issued monthly show—

(a) Additions to property, divided into the kind of plant.

(b) Completion reports of estimates in which unit costs of construction are given in comparison with estimated figures.

(c) Reports of the Engineering Department, showing amounts or costs of construction work on completed estimates arranged by items of completion.

and calling attention to the fact that these reports are all more or less technical in their nature and as such are primarily of value to employees of the Engineering and Plant Departments, bringing up the question as to whether or not actual work done each month on the completion of line orders could not be put in less technical form so that it would be of greater value to the Commercial Department in their following the work of selling telephone service, in order that the Commercial Department may know more about the manufacturing costs; that is, the cost to complete line orders.

We found, by analysis of June's work, that 59 per cent. of all line orders in the Harrisburg Division were completed at a cost of about \$15 or under, that 20 per cent. were completed at a cost of about \$20, 10 per cent. at a cost of about \$25, and 11 per cent. of the orders at a cost ranging from \$30 to \$150 per order, or a total of 157 orders completed out of 1,417, costing over \$30. (See Chart 1.) It was, therefore,

COST OF LINE ORDERS COMPLETED DURING THE MONTH OF JUNE, 1961-HARRISBURG DIVISION.																
ORDERS REQUIRING ONLY A WIRE SET DROP AND A RE- STALLATION	TOTAL COST	ORDERS REQUIRING PHOLE CROSSINGS, AERIAL WIRE ETC. FOR TOTAL COST ADD \$10.00 TO EACH UNIT.												TOTAL TOTAL ORDERS COM- PLETED	TOTAL AERIAL COST	
		1x1	1x2	1x3	1x4	1x5	1x6	1x7	1x8	1x9	1x10	1x11	1x12			
HARRISBURG	101	47	81	12	6	2			1	1	1	1			200	20.14
SCRANTON	100	80	19	10	2					1					106	17.40
READING	127	24	10	10	4	6	1	7							104	17.70
ALTOONA	179	7	10	6	2										104	18.70
WILLIAMSBURG	118	65	24	4	2	1	2	7		1	1	1			210	27.07
WILLIAMSPORT	106	80	25	14	6			1	2		2	1	1		100	27.47
ALLENTOWN	29	57	17	15	6					2	1	1	1		142	17.10
TOTAL	827	278	100	68	27	12	4	17	7	6	5	7	2	3	1417	17.10

SUMMARY	
278	ORDERS COMPLETED @ \$4. - @ \$5 OF TOTAL
278	- - - \$4. - @ - -
100	- - - \$5. - @ - -
68	- - - \$6. - @ - -
27	- - - \$7. - @ - -
12	- - - \$8. - @ - -
4	- - - \$9. - @ - -
17	- - - \$10. - @ - -
7	- - - \$11. - @ - -
6	- - - \$12. - @ - -
5	- - - \$13. - @ - -
7	- - - \$14. - @ - -
2	- - - \$15. - @ - -
3	- - - \$16. - @ - -
1	- - - \$17. - @ - -
3	- - - \$18. - @ - -

obvious that the supervision should be directed toward the orders costing more than \$30, this leaving only 11 per cent. of the orders that really needed special supervision.

The above costs cover the items of subscriber's set, installation, drop wires, crossarms, aerial wire and miscellaneous poles, but do not include any of the available permanent plant in place, these figures representing the cost of additional plant to complete the orders.

In order to put the supervision on a good working basis Mr. Crosman originated a form on which the Plant Department would notify Commercial as to the cost of the particular orders to be supervised. (See Chart 2.) For convenience the subscriber's set, installation and drop wires were printed in at \$15.00, this being the average cost for the work.

In sending out, to the District Managers, the information relative to this supervision, the Division Manager stated:

"With a view to establishing greater supervision of the investments which the Company is compelled to make in the way of installations for service, the sum of which investments in the course of a year aggregates a very large amount of money, I have arranged with the Plant Superintendent that in future Local or District Man-

TO COMMERCIAL DEPARTMENT

ESTIMATED COST OF EXECUTING LINE ORDER NO. 7777

EXCHANGE	<u>LANSFORD</u>	
NAME OF SUBSCRIBER	<u>LEHIGH COAL & NAVIGATION CO.</u>	
	<u>RES. OF ALEXANDER E. WATKINS</u>	
ADDRESS	<u>EAST PATTERSON ST.</u>	
KIND OF SERVICE	<u>DIRECT</u>	
SUBSCRIBER'S SET	<u>INSTALLATION & DROP WIRES</u>	\$15.00
RIGHT OF WAY		
POLES	<u>3</u>	\$30.00
AERIAL WIRES	<u>1 CKT MILE</u>	\$30.00
OTHER EXPENSES		\$5.00
		ESTIMATED COST. \$80.00

DATE 8-3-11 ORIG'L. SIGNED BY S.M. PALM
TO DIVISION MANAGER REVENUE \$30.00

RELATIVE TO ABOVE, HAVE REQUESTED COMPLETION OF ORDER FOR THE FOLLOWING REASON:

"SEE OTHER SIDE"

DATE 8-4-11 ORIG'L. SIGNED BY ERNEST RITTER

TO PLANT DEPARTMENT

HAVE NOTED ADVICE REGARDING ESTIMATED COST OF \$0.00
OF EXECUTING LINE ORDER NO. 7777 EXCHANGE LANSPORD
KINDLY PROCEED WITH SAME.
DATE 8-7-11 SIGNED ERNEST RITTER

gers shall be advised before the completion of the line order of each case where the cost is estimated to exceed \$30.00, inclusive of the comparatively fixed factors of sub-station set and installation and drop wiring, which fixed factors may be roughly considered at about \$15.00. The Plant Department will return the line order in question with a memorandum form showing in detail the cost figures in each such instance, and this should serve as notice to the Commercial Department that a more than ordinarily expensive installation is involved and prompt efforts should be made to obtain contributory business in the same neighborhood if at all possible. The money spent for installations constitutes an exceedingly important part of the Company's annual outlay and it is extremely desirable that the District and Local Managers appreciate the need for careful supervision of the matter to the end that our investments shall be just as profitably made as it is possible to have them."

As soon as the Plant Department finds out that an order will cost more than \$30.00, the information is filled in on the "A" part of the form and sent to the Commercial Department. After the Commercial's investigation they either return the "B" part of the form, asking for the completion of the order, or a cancellation is sent through.

The result of this method of reporting on orders costing over \$30.00 for July, this being the first month that the routine was in force, shows the small number of 24 orders completed exceeding \$30.00 in cost, while in June, before the routine was effective, there were 157 orders costing over \$30.00; the total new connections in June being 1,417 and in July 1,475.

Plant Engineering

In January, 1910, the Division Switchboard Engineering was transferred from Philadelphia to Harrisburg, and a special organization, consisting of an Equipment Engineer with the proper number of assistants were installed, reporting to the Plant Engineer.

It was suggested that, when the specialized men were sent out to the various offices in the field, in connection with new switchboard installations, or additions thereto, considerable educational work might be given to the Central Office men in the field. We, therefore, made it a part of the routine of the Equipment Engineer's force that while doing their own work they would also make a careful inspection of the condition of the equipment and any other matters that came to their notice while engaged on a particular central office job. This inspection

is made really without any added expense, as the man is on the job getting data and studying the situation and he naturally notices certain things, condition of wiring in boards, condition of keys, condition of furniture and other things that he is especially interested in from an Engineering standpoint, because in his work he specifies regarding these matters. All items that, in his judgment, require attention, he brings directly to the Wire Chief in charge, and any unusual conditions noticed to the Supervisor direct.

Early in 1910 it became apparent that the construction engineering work could be vastly improved by having, at outside points, men permanently located and reporting to the Supervisor, instead of detailing men from the Harrisburg office to the various centers to make plans and work in territory where they were not familiar with local conditions. It was customary at one time to have the Supervisor prepare the detail plans, doing all of the work, draughting and blue-printing, and in some instances to write the estimates complete. We purposely steered away from this plan, as experience had taught us that it tends to make too much of an office man of the Supervisor, retarding his general work of the construction and upkeep of the plant.

Following along these lines, Engineering Inspectors (sometimes designated as District Engineers) were appointed, reporting to the respective Supervisors, with definite instructions as to how the work should be handled. These men were not in all cases experienced inspectors, some of them being taken from the draughting and the Wire Chiefs' forces. When they were sent to the districts they were given a short course of special instructions by the Plant Engineer, and provided with a full set of all the standard specifications. They were thoroughly drilled to follow the instructions and methods laid down in the standard specifications and to make no deviations unless authorized in writing to do so.

It was so planned that the Engineering Inspector and Supervisor would jointly work out in the rough what additions to plant are necessary. The additions recommended to plant construction are indicated in colored pencil on blue line maps by the Engineering Inspector, giving the details of guying, pole work, cable lengths, multiplying plant displaced, etc., separately, and are forwarded to the Plant Engineer, through the respective District Plant Superintendent, for his approval. If approved by him, and with the information forwarded, the Plant Engineer, after comparing the additions recommended with the ultimate layout and the present cable plant, in order to determine if the new work will fit into ultimate plans and that the cables are of proper size, and the work is warranted by proofs applied by him, he then has the estimate prepared.

On jobs where there is a large amount of rebuilding it has been found especially helpful for the Plant Engineer to spend some time in the field with the Supervisor and his Inspector before the final plans are prepared, the idea being to consider the ultimate layout of the town in connection with the existing plant in order that as much as possible of the old plant may be worked into the new without interfering seriously with the ultimate layout, and avoid transfer loss.

The plans and details are furnished along certain definite lines.

(a) Blue Line Map—showing the work—reasons, and present and proposed efficiencies.

(b) Details, in pencil, showing proposed work and plant displaced.

(c) Material required and displaced.

(d) Commercial Department estimate for two years or more including new stations, supersedures, rural stations and revenue.

(e) Any information bearing on estimate, as rock digging, municipal requirements, etc.

A great advantage in having an Engineering Inspector reporting directly to the Supervisor in a Division covering an extensive area is that he is right on the site where the daily work is going on. He keeps in touch with the Wire Chief on the question of cable spares, in touch with the loop work going on, and quickly learns the places where cable should be placed, now fed by open wire; is in touch with new building operations, and by his familiarity with all of the local plant conditions existing in his district, and being in close touch with the Supervisor, he is enabled to get out plans for additions usually in less time than it would take to send a centralized Engineer to the field and get the information. His information is in memorandum form, and he is not required to prepare plans and specifications that are forwarded to the Engineering Department, Philadelphia, but he does furnish the information in the rough and in such detail that at one central point the finished plans and specifications can be prepared by men who are specialized on this kind of work. This gives the Inspector a chance to do more engineering work, as he is not an office man, tied down to the draughting table.

Work Orders Issued in Connection With Estimates

The authority for issuing a work order is based upon the approval of some estimate. All Plant estimates involve a number of accounts chargeable. The different accounts chargeable covering the work in any one estimate may be as many as ten or more.

In issuing the work orders it was customary to write all of the work to be done on one order, irrespective of the number of accounts chargeable; that is to say, one order might contain ten accounts. It was found, in practice, that certain Foremen had great difficulty in reporting time and material to the various accounts, owing to the need for exact separation and charging to the proper accounts, and we were compelled to quickly devise a means whereby the Foremen would not be confused and by which we could secure information in proper form to permit of readily charging to the right accounts. It was then suggested that each order involve not more than one account, and this method was adopted. To illustrate:—

If a Line Foreman has a job covering the building of a section line, involving the erection of poles, placing of crossarms, stringing of wire and right of way. He has separate orders issued to him covering the pole construction, the cross-arm construction, the wire construction and trimming right of way. While this carries with it a multiplicity of orders, it gives the Foreman a definite place, an index, to charge all of the expense incident to each part of the work, saving considerable time in the field and permitting him to devote practically all of his time to the real work of getting up the plant.

In issuing construction work orders, the material is listed, the number of the blueprints under which the work is done is noted, as also the estimated cost of doing the work expressed in the number of hours of labor, but not in money.

After the work order is issued it becomes the duty of the Foreman to complete the work under the estimate made unless some unforeseen conditions intervene increasing the cost. The allow-

ance in hours serves as an indicator to him that this amount is about the maximum that should be spent, and it is expected of him, should the conditions be favorable for easier completion, that a saving will be made. If it is found that there will be required additional hours to complete the work, the Supervisor's clerk secures a supplemental order, properly approved. This order gives the reason for the added cost and aids the clerical force in their Completion Reports to understand why the work has exceeded the estimate, and in the same manner, if the work is done below the estimated cost, it is noted, and I can assure you the Foreman receives appropriate commendation.

The special supervision put on this detail has resulted not only in helping the field forces, but it has simplified the summarizing of the work orders in the general office, inasmuch as the Summary Clerk does not have to pick out items and charges to different accounts from one order. He knows that the one order contains charges to only one account, permitting these orders to be sorted into appropriate bins for the summary work to follow. So that while we have increased the number of orders, costing slightly more for stenographic work, we have saved many times this sum by the simplified manner in which the work finally goes through after it is once started.

It also avoids the necessity of having men with engineering knowledge to make up the completion reports. Owing to the method above outlined, the preparation of the Estimate Completion Report becomes a purely clerical job.

Construction

In dealing with outside construction there are two classes:—

First. Heavy artillery work under which may be comprised conduit, cable, poles and toll circuits.

Second. The light artillery work consisting of drop wires, installations, the placing of subscribers' equipment and interior block work.

All of this work, together with the supplies in a Supervisor's district, was formerly in charge of one man, known as a District Foreman, who reported directly to the Supervisor.

It was found necessary to give the District Foreman a senior installer, in order to follow up the subscriber installation work, and after a time we found that the senior installer was working at a great disadvantage, due to the fact that it was hardly ever convenient for him to confer with his boss, on account of his boss being engaged on the heavy construction work or in traveling from town to town, and that to a large extent the installation work was going ahead without any real supervision from the District Foreman. It was also found that the storekeeper was running his own job without any real direct supervision.

There is really no advantage in having too many men report to one man; in fact, it has every disadvantage if the work is scattered. The more men within certain limits who can report directly to a Supervisor, or other boss, the better will be the general result. In other words, there is not much to be gained by having assistants to men other than assistants who do specific work under the direct instructions of their boss. For this reason we said we would change the District Foreman's title to that of Construction Foreman, that he would continue to report, as before, to the Supervisor, but that he would not have anything to do with the storekeeper or with subscribers' installations and the lighter construction work, and that his work would be the heavy artillery work, almost entirely covered by special estimates. To him reports the Line Gang Foremen and the Cable Foreman, and, at times, a

Conduit Foreman, it being his sole duty to see that these classes of construction are completed within time limits set, at the proper costs and in accordance with standard specifications.

Having a Construction Foreman in each Supervisor's district has resulted in a splendid improvement in the completed work, and has permitted the Construction Foreman to specialize, whereas before he had to generalize, and, owing to lack of time, was not permitted to even generalize as he should.

The title of the senior installer was abolished and an Installation Foreman's job was created, in charge of line order work, including the bossing of the Local Loop Gangs. This man reports directly to the Supervisor.

The nature of the Installation Foreman's work keeping him in his own town, permitted the storekeeper to conveniently report to him, and it must be said that by this agreement not only has prompter and a better grade of work been secured, but it has had a very strong influence on reducing the amount of routine supplies carried, as the Installation Foreman's headquarters are usually right in the warehouse, where he can see and direct the storekeeper.

Supplies

In the early part of the year Mr. Nowell sent out a memorandum asking as to the advisability of appointing a Supervisor of Supplies, in order that special attention might be given to this important matter. Following in line with Mr. Nowell's suggestion we appointed, in February of this year, a Supervisor of Supplies, who has given his entire time in placing the supply proposition on a more scientific basis. This he has been able to do by the many helpful suggestions of the Superintendent of Supplies and the fine coöperation of the men in charge of the various districts.

For three years past the forces have been so actively engaged in the work of providing adequate plant that the supply question did not receive close attention as to the amount of investment. It was too generally practiced by the storekeepers and others to load up on supplies, especially cable and material of this nature that enter into the outside construction, in order that there would not be any possible shortage of material when needed.

In planning to reduce the supply investment and to do it in such a manner that there would be no showing-up in the prosecution of the work or other embarrassment to the men who use the supplies.

Results obtained were accomplished by —

First. Educating the storekeepers and stock clerks, at the main storerooms, how to efficiently operate the stock record system, which showed the movement of material and pointed out slow moving and dead stocks, and by establishing maximum stock lists at the smaller storerooms of the sub-districts, based on the average number of installations. The surplus stock was then applied on requisitions and inter-changed between the districts by means of Overstock Summary Reports, which were consulted before requisitions were placed on the Western Electric Company, greatly reducing the amount purchased each month.

Chart No. 3 shows the supply investment as \$158,000 as of March 1, 1911, and \$83,000 as of September 1, 1911, a reduction of \$75,000 in the amount of supplies carried by the division.

It will be noted that the interest on the investment was reduced about \$5,000 a year, not counting the reduction in cost of handling the supplies, the wear and tear and depreciation that always occurs on a large stock, and that the investment per station was reduced from \$2.25 to \$1.00.

Chart No. 3 also shows the number of men that were engaged in handling supplies at the main storerooms in January was 18 and in September 12, a reduction of six men. It would naturally be asked, "How did this reduction occur and are the twelve men disbursing as much material as the eighteen men disbursed in January?" The answer to this question is that in January \$65,000 worth of material was dis-

SUPPLY INVESTMENT

PLANT			
DISTRICT	MAR. 1. 1911	SEPT. 1. 1911	DIFFERENCE
ALLENTOWN	\$17800	\$7000	\$10800
ALTOONA	19500	6800	12700
HARRISBURG	31500	26400	5100
READING	23200	13900	9300
SCRANTON	28200	10000	18200
WILKESBARRE	13200	5900	7300
WILLIAMSPORT	24600	13000	11600
TOTAL	\$158000	\$83000	LESS 75000
INT. ON INVESTMENT AT 6% MAR. \$9480 PER YEAR			
" " " " "	" " " " "	SEPT. \$4980	" "
INVESTMENT PER STATION MAR. \$2.25			
" " " " "	" " " " "	SEPT. \$1.00	

PLANT DISTRICT	NO. OF MEN MAIN STOREROOM	SUPPLY DISBURSEMENTS
ALLENTOWN	2	1
ALTOONA	2	1
HARRISBURG	4	3
READING	3	2
SCRANTON	4	3
WILKESBARRE	1	1
WILLIAMSPORT	2	1
TOTAL	18	12

bursed, and in September \$64,000 worth of material was disbursed, the figures being practically the same.

The results obtained in reducing the number of men in handling supplies was brought about chiefly by the scientific arrangement and grouping of the various classes of material so that the most active stock was placed where it was most accessible, which not only saved the storekeeper's time in disbursing, but also saved the time of the employee drawing the material.

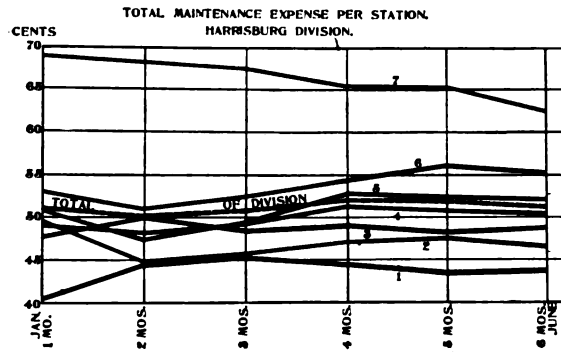
Analysis of Repair Figures.

The Auditor furnishes the Plant Manager a monthly statement showing the total cost of the various classes of repairs, which is also sent to the field. This report is sub-divided into Central Office, Subscribers' Equipment, Pole Lines, Underground and Aerial Cable, etc., and shows the total cost of maintenance, including the above items, and other expenses made up from Contract Changes and Rearrangements, by Divisions.

By noting the costs from one month to another a very fair comparison is had so far as the total expenditure of a Division is concerned, and very often we say that a particular month has been a satisfactory one as the cost figures are low and the grade of maintenance given appears satisfactory, but, as a matter of fact, from these figures we are not able to say that the whole job has been satisfactorily done. The figures might have been much lower if certain things had not happened and if everybody supervised equally well.

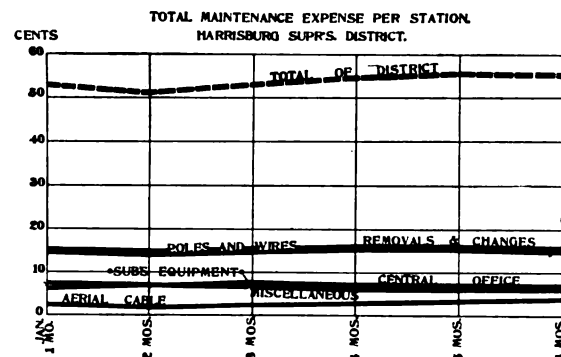
It is not intended here to give the figures in detail on these reports, but to show, by the curves, the manner of arriving at the districts that are apparently not making a good average showing.

Chart No. 4 shows the total maintenance expense per station for the division, the dotted line showing the average for the first six months



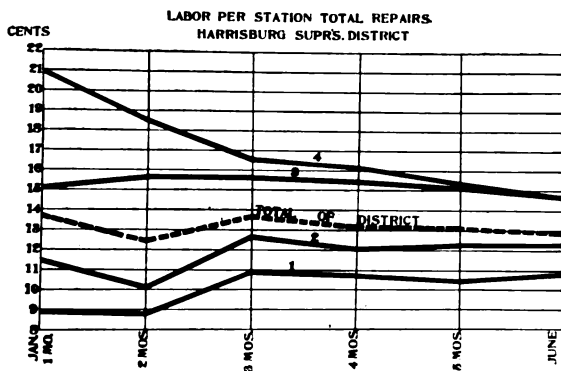
to be about fifty-two cents per station per month. The numbered curves (1 to 7) indicate the expense sub-divided into Supervisors' districts. It will be noted that there is a wide variation between District No. 1, ranging from forty-one to forty-four cents, and District No. 7, ranging from sixty-nine to sixty-three cents. It is apparent that not only does District No. 7 require analysis, but that District No. 6 should also be investigated to determine if the expenditures being made are warranted or necessary on account of unusual conditions prevailing.

Following the matter along these lines, Chart No. 5 shows, by dotted line, the total maintenance



expense of District No. 6 (Harrisburg), and the accounts making up this expense are shown in solid lines, all of which for the first six months of the year run quite uniformly. The next step is the investigation of the Supervisor's sub-districts making up the totals from which the average for the district is secured, and, in order to get a quick and convenient guide bearing on the cost, the labor repair expense by sub-districts is studied. It is found that the labor item of the Repair Accounts is about 60 per cent. of the total repair cost and it is, therefore, a very good indicator of the current up-keep expense.

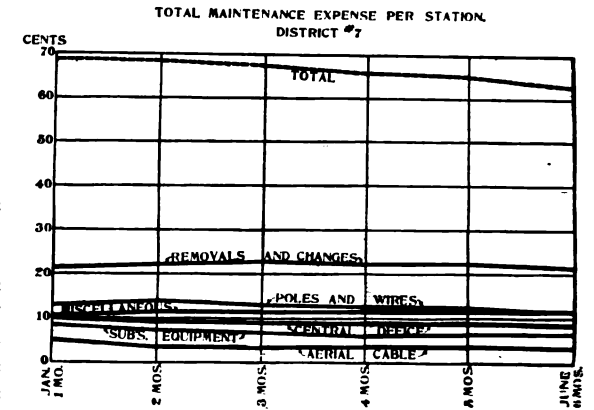
Chart No. 6 shows the labor repair charges of Supervisor's District No. 6 (Harrisburg), ar-



ranged into sub-districts, from which the average of fourteen cents (dotted line) is secured. It is seen that sub-district No. 1 ranges from nine to eleven cents, while sub-district No. 4 ranges from twenty-one to fifteen cents. On this last study we find that sub-district No. 4 had unusual storm trouble to contend with during

the first three months, and that sub-district No. 1 had permitted some slight errors to creep into the distribution of charges.

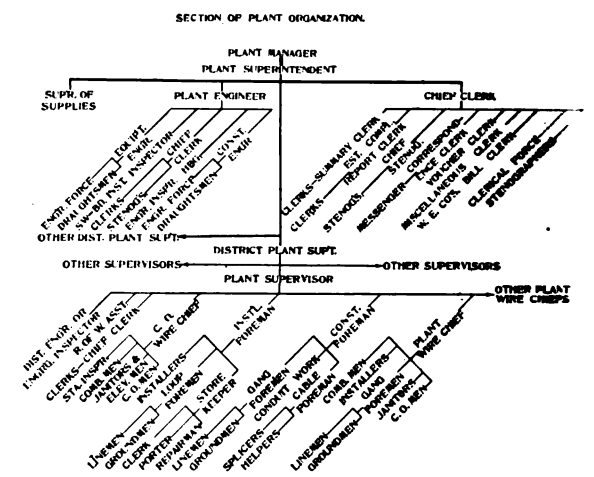
Chart No. 7 shows the analysis of the sub-accounts of district designated as No. 7, the dotted line giving the total maintenance expense. It will be observed that the sub-accounts—airial



cable, subscribers' equipment, central office, poles and wires, removals and changes and miscellaneous run quite uniformly, and that for the first three months there was very little reduction in the total expense, at the end of six months a reduction of about six cents per station and for July, August and September a further reduction not shown on the chart.

In considering the items making up the total expense it was found that the number of contract changes were relatively higher in this district than in any other, accounting for seven cents of the total, the other accounts running from two to five cents above some of the other districts. This is accounted for, to some extent, by rather low development for the kind of plant to be maintained, there being several common battery offices with a small number of stations and in an area requiring a large amount of poles and open wire.

Chart No. 8 shows a section of the Plant Organization. Under "Plant Engineer" is shown



Switchboard Installation Inspector. It was formerly the practice to have the inspection work done under the Equipment Engineer, but later it was considered better routine to have the Inspector report direct. The Equipment Engineer prepares all plans and specifications pertaining to that branch of the work, and the Construction Engineer follows the outside work as submitted to be done from the field.

Under "Chief Clerk," the dotted lines to the extreme right show a general clerical force, as previously arranged, and the solid lines show the new arrangement.

The Plant Supervisor's Organization is typical of the general arrangement, but in the Scranton District, in addition to a Supervisor at Allentown,

who handles all of the work, as shown on the chart, there are, in the same district, at Scranton and Wilkes-Barre, Plant Chiefs, who handle the maintenance and line order work; a District Engineer and Construction Foreman report directly to the District Plant Superintendent, inasmuch as there are no Supervisors at Scranton or Wilkes-Barre. This modification was advisable on account of certain local conditions of the Northeastern section of the division, lending itself readily to this specialized feature.

Clerical.

To those familiar with the multi-farious details of the clerical work of a Supervisor's office it can be readily appreciated that to change the routine, as was done in the method of accounting in the years 1909 and 1910, that the clerks in these offices faced a problem that was, to say the least, quite different and more difficult than the kind of accounting that they had previously done.

In lining up to take care of the reports in connection with the new accounting it was first endeavored to establish a unit, in each Supervisor's office, for summarizing and reporting all of the details of the work in connection with line and work orders. It was the aim that each district should make a complete report in such detail that, when all of the orders were gathered together in the Plant Superintendent's office, they could conveniently be merged into a completed whole.

Owing to the different things that happen in Supervisors' Districts, due to emergency matters, storm troubles and the general work of the office, these reports were frequently side-tracked and late in coming in, and oftentimes incomplete. This fault could not fairly be attributed to the men handling the work, but more especially to the fact that their work is of such a general nature that it was quite impossible to render the special work demanded and within the very limited time given.

It was also experienced, under this scheme of doing the clerical report work in detail in the field, that at the Harrisburg office it was necessary to work five to ten nights a month with all of the Plant clerks on extra duty, in order to get the reports out in time to the Auditor. The recurrence of this over-time once a month had a depressing effect on the day work of the men, and we set out to eliminate the night work, which resulted in a complete change in the method of handling the clerical work, a reduction of clerks in the field and a specialized and larger force at Harrisburg, arranged in logical order for handling the various classes of work.

It was arranged that the Supervisors' offices would forward daily to the Plant Superintendent's office, all line and work orders completed on the previous day. The only requirement placed on the Supervisor's office is to see that the amount of material and time and other expense is properly recorded on the orders before they are forwarded, and that the work done is in accordance with the instructions of the order.

The corps of clerks at headquarters daily examine, summarize and separate the different orders by kinds and accounts, the idea being to get each day's work to a finished point as soon as possible after the completion of the work.

The centralizing of the clerical summary work has worked out about as follows:

It has built up a staff of specialized clerks, each doing a certain step of the work in a standard manner.

The placing of all detailed information at a point where it can be conveniently and specially supervised by one Chief Clerk.

Ease in handling large quantities of work due

to the fact that there is enough of each class of work to keep clerks busy on the same kind of work, the absence of interruption, by miscellaneous questions, enabling constant application to the work in hand.

Quick discovery of matters reported that appeared incorrect.

From five to seven days' time saved in the compilation of the reports, notwithstanding the fact that the reports have increased in the last two years about 25 per cent.

Cutting out almost entirely the old feature of all of the clerks working at night from five to ten days a month, in order to get out the reports in time.

It has enabled cost studies to be investigated before the subject matter becomes too old, and has brought about standard stenographic work in connection with the reports. This part of the work showed a great improvement, owing to the fact that many of the Supervisors did not have enough work to keep a stenographer always busy and a general clerk did typewriting in addition to his other work, which was slow, cumbersome and not always presentable.

The Western Electric Company has completed a new switchboard for us at Harrisburg. When the installation began a bright-minded Western Electric man nailed to the wall a subject entitled "Get your heart right," printed in large letters, and where every employee would be most likely to see it. It reads:

"Be loyal to your employer. It costs you nothing. You pledge your support every time you take a dollar of his money. Help steer the ship that is carrying you. Guard the tent that is sheltering you. Boost the man that is working for you just as much as you are working for him. Think with him. Act with him. Let your heart beat with his. It means team-play and success."

And all of this, with its team-play, lends ease to administration and supervision.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Atlantic District. The American Electric Railway Manufacturers' Association has just finished its annual convention on Young's Million Dollar Pier. This brings together from nine to ten thousand members and visitors connected with the Street and Inter-urban Electric Railway Business from all parts of the United States, Canada and Mexico. Its telephone business was handled this year by means of a private branch exchange of 12 trunks and 97 stations. A full report of each day's happenings was sent by telephone and messenger every night to the Lasher Press, Philadelphia, which prints a daily edition of the *Electric Railway Journal* during the convention.

Bridgeton Sub-District. Two Bridgeton telephone subscribers are receiving the World's Series base ball score by innings. One subscriber receives them over the Western Union Telegraph wire and the other by Bell Telephone.

They have put up a scoreboard directly across the street from the joint telephone and telegraph office, which is watched every afternoon by a large crowd of city base ball enthusiasts. **LORE.**

Camden District. A monitor switchboard has been installed at the DuPont-DeNemours Powder Company's Rapauno Works, Gibbstown, N. J., comprising one trunk and 6 stations, superseding a two-party line 70 per cent. contract and three extension sets. The satisfaction already expressed speaks well for this system. **CROXTON.**

Doylestown Sub-District. A No. 2 private branch exchange of 7 stations has been installed in the residence of C. J. Matthews, of Langhorne, and an application has been received for the same service with six stations in the home of V. J. Humbrecht, at Yardley.

On Sunday, October 8, at 11.20 A. M., our aerial trunk wires running between Sellersville and Perkase came in contact with the power circuit of the Lehigh Valley Transit Company, carrying 550 volts. The current was transmitted to 3 of our cables, burning out one 30-pair, one 60-pair and one 120-pair cable, putting 330 subscribers' stations and 12 trunk lines out of service. Service was established on the trunk lines by 3 o'clock the same day, and by Tuesday, October 10, at 5 P. M., all the trouble was permanently repaired and service restored. By the prompt action of the operator at Sellersville in notifying the combination man stationed at Quakertown and he in turn making a record run on his motor cycle from Quakertown to Sellersville and pulling the fuses on the main frame, the destruction of the switchboard at the latter place was probably averted.

HENNESSY.

Trenton District. The American Mechanic Building, a new ten-story office building containing 172 office rooms, was completed in Trenton about September 1, 1911, and thirty-three stations have already been installed. Considerable trouble was experienced in the installation of these telephones, due to the builders placing a conduit too small to accommodate our standard cable sufficiently large to supply the demand for service.

At Trenton a private branch exchange of 11 stations has been placed in the new store of the Mercer Automobile Company, and a direct line and extension station in Barlow's new music store has been replaced by a private branch exchange.

GARWOOD.

West Chester District. Several candidates in the recent primary election of Chester County did their electioneering by telephone. Such good results were obtained that one successful candidate for nomination stated that he would repeat the plan for the general election. **GREENFIELD.**

Wilmington District. On October 3 the majority of the Wilmington members of the Philadelphia Telephone Society were seated in the smoking car on the way home, when H. Logan, a Plant employee, was seated with a Wilmington merchant. Their conversation drifted to telephone, and in a few moments Mr. Logan asked a Commercial man if he would send a salesman to see the merchant the following day regarding extension service. Salesman B. L. Smith, who was near, exchanged seats, and in a few minutes a supplemental application form and a fountain pen were produced, with the result of a gain of one more. Credit is due not only to the Commercial man, who is always prepared, but to the Plant representative who boosts his business at every opportunity.

The coöperation of Plant and Commercial men in the Wilmington District has resulted in many tips received for prospective subscribers and additional equipment. Plant Supervisor Hosfeld proposed the posting of a weekly bulletin in the store room, locker room and traffic retiring room, giving name of employee, name of subscriber or additional equipment secured and revenue. The first bulletin was so posted Monday, October 16, and the friendly rivalry among the employees not directly interested in Commercial work we feel will result in a good business.

Salesman B. C. Kirk has signed the Krebs Pigment and Chemical Company, of Newport, Del., for a cordless board and seven stations, superseding party-line service. **CHAMBERS.**

J. C. WEIRICK, Division Correspondent

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THE TELEPHONE NEWS



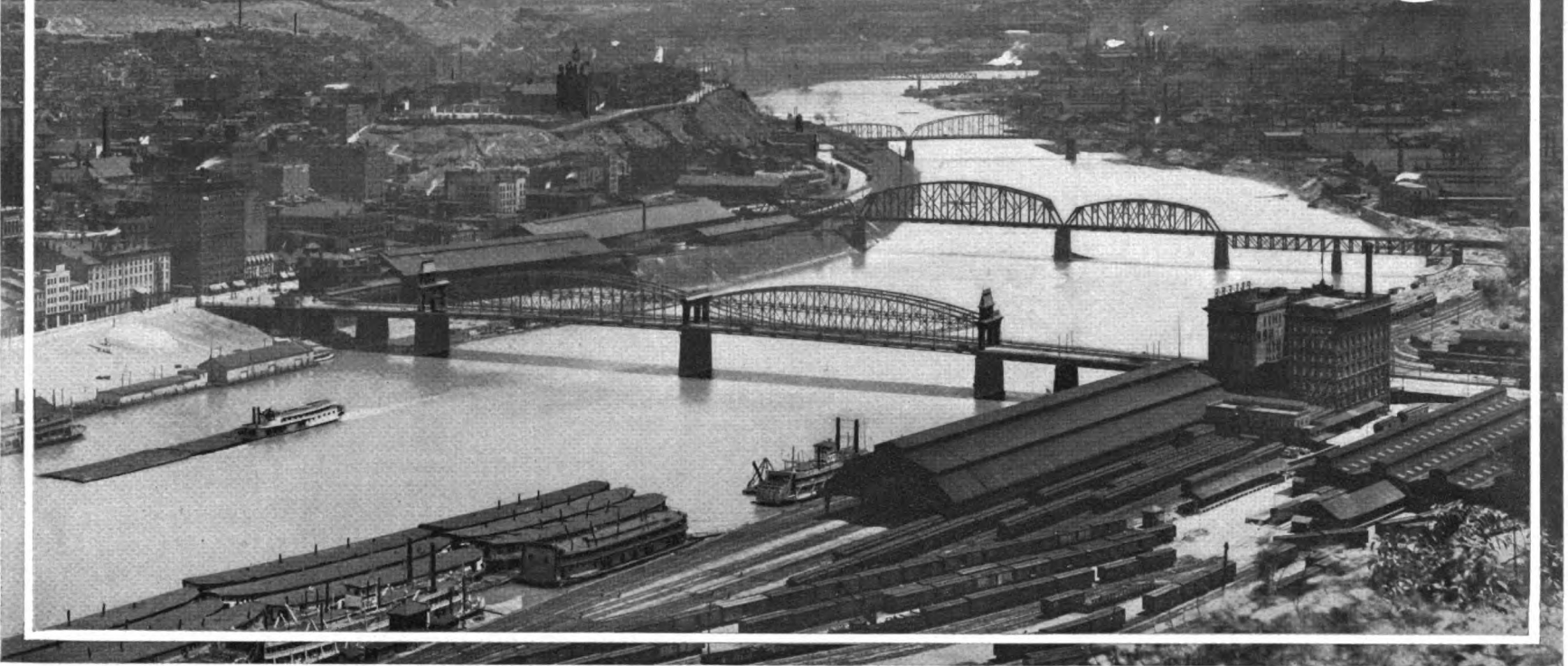
VOL. VII

PHILADELPHIA, PA.

NOVEMBER 15, 1911

NO. 22

The MONONGAHELA COUNTRY



Address by Mr. F. H. Bethell, Vice-President of the Companies, before The Pittsburgh Telephone Society

Mr. President and Gentlemen of The Telephone Society:

THANK you for this very cordial reception, and I extend to you greetings from the President of our Company, Mr. U. N. Bethell. For the benefit of those of you who have never seen the President and who might wonder what he is like, I will tell you that in passing through our building in New York a few days ago I was hailed by a man who told me that I acted and talked very much like the President—when he is tired.

You have at other meetings heard so much of a constructive nature, and you are so thoroughly imbued with the spirit that makes for efficiency and economy, that though efficiency and economy are things I love to talk about, I am going to depart from the usual custom and talk to-night of things historical.

There is no part of our country more filled with historical interest than the territory in which we (and when I say "we" I mean the C. D. & P.) operate. At the outset, I planned

to hold myself in my address to an outline of the development of Pittsburgh along commercial lines, dovetailing the development of the telephone into the general development, but the early history of the territory is of such great interest that I found it impossible to get away from it once I had taken it up.

The preparation of this paper lead me to much pleasant reading. One of the books I enjoyed was written by Mr. Edgar W. Hassler, of Pittsburgh, entitled "Old Westmoreland." In his preface, Mr. Hassler says:

"A prime object of this publication is to stimulate a local interest in pioneer history. It is good for those who participate in the wondrous industrial development of Western Pennsylvania and Eastern Ohio to know how this fertile region was won and held from savagery.

"The American Revolution covered many fields of action and the operations on each contributed to the grand result. The men who defended the western border against

the savage tribes were doing their work essential to the cause of freedom, as well as the ragged Continentals who faced British and Hessian battalions in New York or New Jersey.

"Naturally the operations in the East, where the main conflict raged and the issue was decided, have received the chief attention of historians, but the struggles on the western frontier have been unduly neglected."

I will say, in passing, that the book "Old Westmoreland" could not have been written in Western Pennsylvania had not the facilities afforded by the Carnegie Library at Pittsburgh been at the author's command.

One of the many interesting things bearing on this history is a letter written at Bedford, Pa., on June 7, 1817. It was written by Mr. Elias Pym Fordham, an Englishman, to friends in England. In it he describes the early stages of

(Continued on page 4)

The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telegraph & Telephone Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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SUBSCRIPTION PRICE:

To employees of the above Companies - - - NO CHARGE
To employees of OTHER BELL COMPANIES, \$1.50 per annum,
payable in advance

Vol. VII NOVEMBER 15, 1911 No. 22

Music in the Morning.

"I WAS in John Wanamaker's store this morning five minutes after it opened and—"

We didn't exactly fancy the aggressive, boastful manner in which our caller made the statement—so we gently interrupted: "What were they giving away?"

It never touched him. Ignoring the point, he continued: "And I saw something I'll not soon forget.

"I went in to make a small purchase at the drug sundries counter. I got what I wanted and while I was waiting for my change the big pipe organ began to play. Say—it was great!

"At the first notes the neat little saleswoman smiled and said: 'Oh, there's that beautiful song again.' And she was right; it was fine,—a simple old German lullaby.

"I asked her what the music meant and she told me they have concerts every morning from eight until eight-thirty. 'If you care to go up in one of the grand court galleries you'll hear some good band music in a minute,' she said.

"Well, I'd often heard of Wanamaker's sixty-piece military band and I had twenty minutes to kill—so I went; and believe me, I'm glad I did.

"Talk about a morning inspiration!—John Wanamaker sure has the right idea. That was my first thought as I leaned over the marble railing and listened to the beautiful *Strauss* waltz the band was playing when I arrived. Then they played an overture; and next my old favorite, the "*Soldiers' Chorus*" from *Faust*. When their bugle corps of about twenty pieces stepped up into the organ loft and joined in on that inspiring refrain at the climax, I confess my collar grew uncomfortably tight.

"Think what a splendid start those people get every morning. Just through curiosity I watched to see what effect the music had on them; and it's a fact that of the

hundreds of employees in sight, I didn't see one stop his or her morning work to listen in a loafing manner. Is it any wonder that establishment is in a class of its own when it comes to efficient service?

"It was great!"

Our visitor laughed at his own enthusiasm and hurried out—whistling the air of a stirring march.

But he had "started something" with that encomium. Here was a man who had found out for himself the truth of the trite old sayings about beginning the day cheerily; but the truth didn't seem trite to him.

A question came to mind: "What's the use of this sort of thing in the telephone business?" We're scattered over seven states; we can hardly station brass bands all over that broad field to cheer up our employees at the start of the day.

No—we can't. But there's something each of us can do,—whether we're in Salem, New Jersey or Bellaire, Ohio; in Washington,—N. J., Pa., or D. C. Every one of us can start the day with a song; not literally, perhaps, for in the majority of cases that would interfere with the work of someone else. And it was Emerson, wasn't it, who remarked that one man's rights *end* where another's *begin*. It's the spirit of song, and the light-heartedness that comes with it,—that's the thing. The healthy disposition resulting from this mental tonic is going to smooth the way for every associate who comes in contact with us.

But whether we hum it, whistle it, play it, sing it,—or even butcher it, music in the morning is going to help. Some of us, in truth, might begin by eliminating the melancholy tones from our "Good morning's" to co-workers. And thus, no matter where located, we can put a dash of efficiency flavoring into the makeup of our day's work.

To Accomplish Much in Little Time

THE mission of the telephone we all know. The application of that same principle to the more efficient accomplishment of daily routine is always presenting itself to us. Right here occurs a thought that may be applied very often. There are days when, although keeping occupied and feeling as if we were busy every minute, we seem to accomplish little except to complete a lot of detail work that at the end of the day appears insignificant. In other words, while we would resent the suggestion that we had not used our time to the fullest advantage, somehow we are not satisfied with the results.

Did you, whose work is at a desk, ever try these plans?—

(a) Begin at the top drawer and actually complete each duty in numerical order as you take out the papers—always one at a time. Those for which no immediate solution is physically possible are left on the top of the desk. Nothing is returned to the desk drawers or sent out which is not entirely finished insofar as you can do it.

(b) Do not leave your desk to consult anyone except your superiors nor to carry a paper if the telephone or messenger service can answer the purpose.

(c) Complete each thing which you find occasion to begin before starting another.

(d) At the end of the day return the uncompleted work to a single drawer, so arranged as to repeat the plan on the following day.

If this plan is put in practice you will discover that you are applying a doggerel maxim which perhaps your grandparents used to repeat:

"One thing at a time and that done well,
Is a very good rule as many can tell."

Campaigning by Telephone.

SOME of us are always looking for new uses for telephone service. The fact that men as candidates for various offices have saved traveling expenses by using the Bell is not new, but when women use it for political purposes we believe that it may be termed new—at least in certain Eastern States.

The Woman's Committee for Good Government, a Philadelphia campaign committee pledged itself to inaugurate an endless-chain telephone campaign in the interests of one of the November, 1911, tickets. Each woman promised to telephone every day three or four friends and acquaintances and to urge their support and influence for the Committee's candidate.

It was expected that nearly 200,000 messages would be sent prior to the election and that, as each of the recipients would naturally tell friends, a very much larger number would hear of it. They called the voters directly and in their absence urged wives and sisters to repeat the message upon their return.

The plan is a good one to remember and suggest at future times when the opportunity is presented.

Telephone Societies

The Philadelphia Telephone Society

Dr. F. B. Jewett, Transmission Engineer, American Telephone & Telegraph Company, spoke at the November meeting, held on the fourteenth, at 1420 Chestnut Street. His subject was "Telephone Transmission Engineering."

Camden Telephone Society

This society was reorganized October 26 in the Goff Building, 23 Broadway. Fifty men from Camden District were present to hear brief addresses by the Plant Supervisor and the District Manager.

The following officers were elected to serve one year:

President, W. F. Repp.

Vice-President, T. B. McClain.

Secretary-Treasurer, S. H. Croxton.

Meetings will be held on the third Thursday of each month. At the November 16 meeting T. B. McClain, District Manager, will address the members on the subject of "Bell Service."

The Telephone Society of Pittsburgh

November 24, Oliver Building.

SUBJECT: "The Adventures of a Line Order."

SPEAKERS: E. C. Bates, Commercial; J. H. Luckhart, Plant; C. G. Klocke, Traffic, and J. H. Cooper, of the Line Order Division, Accounting Department.

The talks will be limited to 15 minutes each.

Transposition Club

November 23, Hotel Henry, Pittsburgh.

SPEAKER: Leo F. Dunn, of the Western Electric Company.

The Telephone Society of Washington

The thirtieth regular meeting of this society was held in the Main Central Office, November 2. An amendment to Article 2, Section 2 of the Constitution, as proposed at the last meeting, was voted on and unanimously passed.

The society was addressed by Messrs. E. Corrigan, Traffic Superintendent; P. G. Burton, Plant Superintendent; D. S. Porter, Division Manager, and C. T. Clagett, Contract Manager.

Northern Penna. Telephone Society

Leonard Hall, Scranton, Pa.

November 17, 8 P. M.

SPEAKER: To be announced.

An Unthwarted Voter.

"But, suppose, my dear, the weather on election day should be nasty and wet and stormy," says the Philadelphia *Evening Times*. "Suppose the day were one of those when you wouldn't venture outdoors; what'll you do?" he asked, thinking he had found a strong argument to convince her that suffrage was not for women.

"Ho, you stupid man!" she answered, with a short laugh. "You never have a real idea do you? You are so like other men in that respect. Why, can't you imagine it, if the day is rainy and unpleasant, I'll just call up the polling place by telephone and tell them how I'll vote."

Hauling Poles with Motor Truck

Motor vehicles have been used by this Company for some time for hauling many classes of material. The Supervisor of Construction of the Philadelphia Plant conceived the idea of applying such vehicles for hauling poles. A bed plate was bolted to the floor of a truck and on this a swivel bolster was mounted. The rear wheels, with the bolster of an ordinary pole truck, were coupled behind the truck as shown in illustrations.

Our motor truck is equipped for pulling cable and it was thought that this power could be used for placing the poles on the truck. Two removable uprights were made—one mounted on the truck and the other on the rear wheels. A small pulley was placed near the upper end of each upright. Two ropes were run over these pulleys, through snatch blocks to the drums on the winch at the rear of the truck. The other end of each of these ropes was made fast to the truck and wheels, respectively. By looping the ropes over a pole and revolving the winch the pole could readily be rolled up the skids onto the truck and wheels. The chauffeur and one man are able to load and haul poles with this outfit.

This scheme was tried out in hauling poles from the vicinity of Mantua to Audubon, N. J., October 27, 1911. Two hauls were made, one of about 14 miles and the other of 11 miles. Five poles were carried in the first load and six on the second. The poles were 30-foot and 35-foot chestnut poles, but they were particularly heavy, the butts being from 20 to 24 inches and the tops 10 inches in diameter. It might be added that they were "green." The weight of each load was at least five tons. Including the distance from Philadelphia to the job, the total distance traveled was 69.5 miles.

In many places the roads were soft and the hauling very difficult. Considerable time was lost owing to the heating of the axles of the trailer. These wheels formed the rear of a horse-drawn pole truck and were not designed for traveling at high speed with a load. As a result several stops had to be made to cool and lubricate the overheated axles. It is hoped to overcome this difficulty with a recently designed trailer, the wheels of which are ball-bearing.

As a closing statement, it may be of interest to know that it would have taken four double teams to haul the poles in the time consumed by the motor truck.

Fine Work by Reading Employees

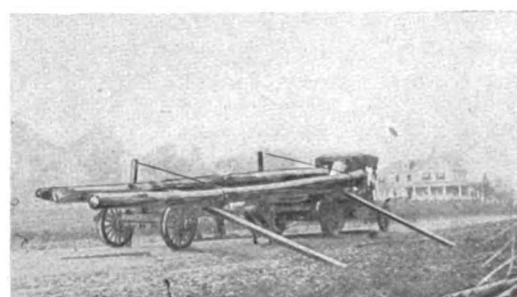
On November 3, about midnight, fire broke out in the Folger Hotel, 27-29 North Fifth Street, adjoining the Company's central office at Reading, Pa. About \$30,000 worth of damage was done in the hotel, and one man lost his life.

The fire which was in the kitchen near the back of the building, began about 12.10 and rapidly burned toward its center. From nearby buildings streams were played upon the fire. A wide area had much to do with keeping the flames from spreading in that direction. As they reached across the passage, it was said that spectators thought the central office was on fire.

The local papers stated that the night operators on duty displayed perfect coolness even though at times the smoke poured into the building and the lights on the switchboard looked like a great glare.

District Manager W. F. Bush, who arrived early on the scene, sent taxicabs to the homes of the day operators to summon them to aid the night force. After the flames were under control, he ordered hot coffee for the firemen.

HAULING POLES WITH MOTOR TRUCK



• ABOVE
LOADING WITH POWER
• BELOW
HAULING FIVE 30' & 35' CHESTNUTS



The Monongahela Country

(Continued from Page 1)

a trip from Baltimore to Pittsburgh. Mr. Fordham says:

"I think I gave you an account of my voyage up the Chesapeake. That little trip made me more of a sailor than my passage across the Atlantic and I felt much more anxious as I had the charge of goods worth at least a thousand pounds which could not be replaced.

"The whole crew of the little schooner were one night so fatigued that they fell asleep repeatedly while the vessel's head was plunging under every wave."

And after giving his impressions of the Virginians, he takes up the Marylanders with the statement that "They are peculiarly addicted to swearing; they are a tall, elegantly shaped race of men. The gentlemen are fairer than Englishmen, their faces being always shaded by hats with extraordinarily broad brims."

"From Annapolis, a beautiful little town seen from the water, to the Patapsco the country is hilly and fine; thence to Baltimore is hilly, but bare of trees.

"Baltimore, except that it has not such palaces as Paris can boast of, nor churches like St. Paul's in London, nor is quite so picturesque as Rouen, nor so grand in itself or in situation, is the most beautiful town I have ever seen. It has no bad streets, but all the liveliness, with scarcely any of the dirt, of a seaport. It contains 60,000 inhabitants.

"I lodged at the Fountain Inn, where at the same time Mr. Monroe, the President, had taken up his abode."

It is of interest to note that the site of the Fountain Inn is now the site of The Bell Telephone Company's main office building in Light Street, Baltimore.

"The distance from Baltimore to Pittsburgh is 240 miles across four ridges of mountains. The mail is six days going this distance; the wagons sixteen. They travel at twelve, fifteen or twenty miles per day. They avoid as much as possible the turnpike roads and scramble over hills and mountains where English wagons would be dashed to pieces."

In the earlier part of the great era of westward migration, the most important thoroughfare from the New England and Middle States to the Ohio Valley was the Pennsylvania Road, or "Pittsburgh Pike," so called, built in 1785-87 by an Act of the Pennsylvania Legislature. It extended 197 miles from Carlisle to Pittsburgh along very nearly the same route as the present highway between these two places.

Travelers during the period following the War of 1812 were invariably astonished not only at the difficulties with which the wagoners had to contend on their trips along this wilderness highway, but also at the amount of traffic actually carried on under such disadvantages.

Thomas Nuttall, writing in October, 1818, says:

"To judge of the inland commerce carried on betwixt Philadelphia and Pittsburgh, a stranger has but to view this road at the present season. All day I have been brushing past wagons heavily loaded with merchandise, each drawn by five and six horses; the whole road, in fact, appears like the cavalcade of a continued fair.

"Birbeck, writing in May, 1817, says that the money paid annually for the conveyance

of goods along the road from Philadelphia to Pittsburgh exceeds 300,000 pounds sterling."

Taking up Fordham's letter again, I find this:

"As soon as I entered Pennsylvania I remarked a different people. Here are no slaves; white people are seen working in the fields and roads; they are cleaner than the Dutch, but the latter are not always boorish.

"If Maryland be the land of hills, Pennsylvania is the land of mountains. We have struggled over four distinct ridges—the North Mountains, the South Mountains, the Cove Mountains and the Sidelong Hills. The last two are infested with banditti, after whom about forty young men went with their rifles about a week since."

Later on, Mr. Fordham says:

"I have visited to-day the mineral springs, about a mile and a quarter from this little town (Bedford). I met there two Philadelphians, amiable young men. It was quite refreshing to converse with people of refined and English manners after having lived with wagoners ten days. They tell me that land within twenty miles of Philadelphia is worth fifty dollars, one hundred dollars and one hundred and fifty dollars per acre."

The same land to-day, some of it, cannot be bought for twenty thousand dollars an acre.

Mr. Fordham arrived in Pittsburgh in June, 1817, and immediately began to set down his impressions of the town and its inhabitants, which I regret were not very flattering.

"Coarse in their manners, inquisitive to a tormenting degree, careless of giving pain or offence, and obstinate in persisting in their rudeness; these are the most common features in their characters. They are chiefly of Dutch, German or Irish extraction, and in general seem to have preserved all the vices of their forefathers and to have acquired a few others.

"Whisky is very cheap; with the labor of an hour, a man may purchase as much as will make him ferocious if not drunk; he fights with the first drunkard he meets and they bite each other like dogs or tear out each other's eyes.

"The climate is very severe. Sleighs are seen at every house. The Monongahela, which is rolling its turbid waves beneath my window, is frozen across every winter and loaded wagons pass to the opposite bank; yet now the thermometer I think would be as high as 90 in the shade. I could not venture out in the sun without suffering for my imprudence; now I am in ill health."

I was pleased to find that the gentleman was in ill health when he wrote this early description of the inhabitants of Pittsburgh. It is also pleasing to note that before he mailed his letter he added the following postscript:

"Since writing the above, I have been in agreeable parties—a higher set. I have met with women whose manners are quite English and whose personal appearance and attractions would be admired anywhere."

In 1817 Baltimore contained about 60,000 inhabitants, while Pittsburgh contained about 10,000 inhabitants, the 10,000 being mostly engaged in manufactures. That the industries of Pittsburgh one hundred years ago were of world-wide interest as they are to-day, it is set down by one of the early writers that:

"Mr. Bakewell's glass works are admirable. He has excellent artists, both French

and English. His cut glass equals the best I have seen in England."

As a matter of history, it is pointed out that the first glass factory west of the Alleghenies was built at Pittsburgh by General James O'Hara in 1797. President Monroe, who was a liberal encourager of domestic manufactures, had, on a visit to these works, given orders for a service of glass which might, indeed, be exhibited as a superb specimen of this elegant art. And so the history of early Pittsburgh is filled with the development of industries all of great interest, but the most interesting and at the same time one of the fairest descriptions of Pittsburgh, as we know it, I have ever read, is found in "The Ohio River," a book by Archer Butler Hulburt. It appears in a chapter called "The Monongahela Country and Its Metropolis." I was born and reared on the Ohio River; drank it; learned to swim in it, and have always loved it.

"The first Europeans who looked with eager eyes upon the junction of the Allegheny and Monongahela Rivers were impressed instantly with the beauty of the scene and the commanding nature of the town between the rivers. Celeron in 1749 affirmed that this was the fairest spot along la Belle Riviere, and in 1753 Washington noted the strategic nature of the future site of Fort Duquesne and Pittsburgh. What these two early representatives of two civilizations thought of this spot, such it has ever been—*beautiful and strategic*.

"Even under its everlasting pall of smoke, the town of Pittsburgh presents often an inspiring picture from the surrounding heights. At night when the winds have driven the smoke away, the great city lies in the moonlight like a mighty battleship at anchor; two tides rush silently together at the tip of the dark sharp prow; high up on lighted buildings twinkle the lights on the "bridge," and far up in the blue dome on the summit of the hill glimmer the lights at the head of the mast. Over it all, now and again, the fire flames from Braddock and Homestead flash out as though the fire boxes under a thousand boilers had been suddenly unmasked. Nowhere are the sights and sounds of the olden days more obscured by the whirl of modern life than here at the technical and legal head of the Ohio River; the roar of the great wheels of business would drown the past; the curling smoke of a thousand furnaces would blind their eye, and yet here at the great center of what in the old day was known throughout the nation as the Monongahela Country there are monuments which neither time nor change can efface, and the most wonderful of these is this proud city itself. What it is and what it is to be are suggestive of all that has been done here. It is a great and growing business center; it has always been that, though with the changing years there have been interesting changes in the forms of business transacted here.

"As both Washington and General Grant said, it is a strategic military center, and it is a strategic commercial center. It has been these for a century and a half for reasons that are as unchanging as the hills. Few cities have retained the same relative importance to the country of which they are the metropolis through six generations as has Pittsburgh since its earliest conception, one hundred and fifty years ago.

"In all the panoramic shifting scenes of the great drama that has been played in the Monongahela Country, the capital city has more than held its own; turn the pages of its unique history as rapidly as you please and you cannot fail to receive two distinct impressions. The growth of Pittsburgh has been a healthy natural growth; the secret of its success lies in its position and the nature of the Monongahela country about it; and secondly, Pittsburgh is preëminently a typical American city. The mountains and rivers made the point of the site for a great city—socially and politically Pittsburgh's equal inheritance from Pennsylvania and New York on the north, and Virginia and Maryland on the south; her close commercial connection with New York and Philadelphia on the east, and Kentucky on the west; her close connection by the Ohio River with the south and its markets and all the commercial interests that this commerce implied; her ancestors' strong religious principle through Scotch-Irish, who so largely peopled the Monongahela country, and her equal strain of German blood from the Pennsylvania Dutch, Frontier and Yankee blood flowing through her to the Connecticut, New Jersey and Massachusetts colonies in Ohio, have tended to make Pittsburgh a cosmopolitan American city, par excellence."

Those of us who know Pittsburgh will endorse heartily this description. The section known in the earlier days as the Monongahela country is the section lying in part in Pennsylvania, in part in Ohio, in part in West Virginia, now served by The Central District and Printing Telegraph Company. It has always been a wonderful territory, both historically and commercially, and it is to-day one of the finest fields for telephone development existing in the whole country. The men who have given their best efforts to the development of the telephone service in the territory are of the stock described by Hulburt. I shall not attempt to mention all of them—time is too limited for that—but I am going to base my estimates of them on my experience with three men with whom it has been my pleasure to work during the past year, and upon results accomplished all along the line.

Mr. D. Leet Wilson, for so many years President of the Company and now the Chairman of its Board of Directors, is of that type of hardy, genial, successful business man properly described as "Pittsburgh's best product."

Mr. Buehler, who upon coming east at once established for himself in Philadelphia the same enviable place he had previously made for himself, and now holds in Pittsburgh, is, I am told, a Pennsylvania Dutchman. If Mr. Buehler is

really a Dutchman, then this great commonwealth should be proud of its Dutch.

Our business is in itself most interesting—to be permitted to engage in such a business and to know and work with such men as Mr. Wilson, Mr. Buehler and that splendid young lawyer you gave us, Mr. Moore, makes a holiday of every working day. In passing to the development of the wire service, I am at the outset going to refer to a Pennsylvania man, and a telephone man, whose interest in the development of the telephone and the telegraph is as strong to-day as it was sixty years ago, when he was in the military telegraph service—Mr. Richard O'Brien, a Director in The Bell Telephone Company of Pennsylvania, and for many years a Director in the old Pennsylvania Telephone Company.

In May, 1861, Mr. O'Brien, then a boy, was the military telegrapher stationed at the arsenal at Washington, D. C. One day in June, of that year, President Lincoln visited the arsenal and, going to the telegraph instrument to write a message, he watched Richard send it and take another. I am quoting now from "Telegraph in Battle:"

"Richard reading, of course, by sound and writing in beautiful penmanship, Mr. Lincoln remarked, 'Young man, you do that well; where do you hail from?' 'From the Pennsylvania Railroad, Mr. President,' said Richard. 'Are you one of the operators who came with Carnegie and Bates?' 'Yes, Mr. President.' 'Well, you are in a pretty safe place here, surrounded by all these big guns.' 'Yes, Mr. President; but I would much rather be at the front where I can hear them roar.' Mr. Lincoln seemed amused at this, and asked his name. Richard told him. He smiled and, turning to Major Ramsey, who was with him, said, 'He comes of a fighting race; treat him well or he will run away to the front.' It was not long until Richard was in the front and heard them roar."

Mr. O'Brien's desire to be in the front and to "hear them roar" is the desire of all good telephone and telegraph men. Those of us in the C. D. & P. are to the front, and we have been hearing them roar for a long time. The results of your fighting can be briefly summarized as follows:

	Population	No. of Telephones
1880	411,225	938
1890	505,805	3,223
1900	606,966	13,247
1910	716,217	56,345

This wonderful development and the high standing of your Company in the Bell Family to-day is due to the untiring efforts of you men who are here to-night and to those who preceded you in the work.

Early in this year it was deemed advisable to

make some rather radical changes in the rate schedules in Pittsburgh. Shortly before these schedules were put into effect, the Division Commercial Manager who had been with you for a number of years, Mr. Rorty, was called to New York and, because of previous experience with similar rate plans, and because of satisfactory results accomplished under trying conditions, Mr. Walter B. Clarkson was selected to succeed Mr. Rorty.

You will recall that Virginia has, in the past, sent its sons to Pittsburgh to assist in making it the great city that it is. In fact, Washington, the greatest Virginian of them all, was one of those who believed in Pittsburgh at the very beginning. Clarkson is a Virginian with all the traits of character that go to make the true Virginian. My confidence in him is based not only on his wonderful work at Washington, D. C., and in the Delaware and Atlantic territory, but by the belief that, though he would come among you as a stranger, he would within a short time win your respect and be counted as one of you, just as Mr. Buehler did when he came here from Harrisburg ten years ago.

The Commercial forces in Pittsburgh, under Mr. Clarkson's leadership, since the new rates become effective on April 1st, have accomplished wonders. They have added 28,000 gross stations; they have superseded from one class of service to another, always making for a better service, 25,000 contracts. Of course, this work of the Commercial Department would have brought chaos into the service here but for the splendid coöperation of the other Departments, the Plant, the Traffic and the Accounting. Mr. Boeggeman has, with his assistants, been required to change 20 per cent. of his total subscribers' accounts. He has at the same time changed his billing methods to conform to those in effect in other territories; and with it all, has kept his work up in a manner that merits the highest commendation. In fact, every department out here has demonstrated not only its ability, but its willingness to do those things which the management thinks is best for the business.

I am absolutely sure that you are going to continue to produce results that will compare favorably with those produced anywhere in the land, not only in Pittsburgh, but in the whole Monongahela country.

NOTE.—The foregoing paper was read before the regular meeting of the Pittsburgh Telephone Society on Friday evening, October 27, in the Auditorium of the Carnegie Institute Building at Pittsburgh.

The first appearance of the Vice-President before this society had aroused the greatest interest, and in spite of the—to say the least—doubtful weather conditions, an unusual audience was on hand to welcome the speaker.

The preliminary business of the meeting was curtailed to the office-taking of the newly elected President of the Society, and the presentation for subsequent vote of a resolution to admit Western Electric Co. and Western Union Telegraph Co. employees to membership.

Mr. Bethell's remarks were greeted with enthusiasm, and his reference to Mr. Wilson and others of the organization—past and present—brought out hearty applause. Upon the close of the paper, commentary talks were made by Messrs. Clarkson, Grace, Ewing, Boeggeman, Terry and others.





The Taxi & The Telephone

How Bell Service Dovetails into the Motor Cab System



HOW can the people of these United States be induced to spread taxicab usage in layers of even thickness over a period of eighteen hours a day instead of hurling the whole usage at a concern between the hours of 4 P. M. and midnight?

"There is money in it for the chap who can show us how," said John W. Weibley, manager of the Pittsburgh Taxicab Company not long ago. In spite of the fact that Mr. Weibley was preparing to escort Elbert Hubbard, of East Aurora, through the garage, this manager, who keeps 45 automobiles running without climbing under any of them, found time to tell how the "Bell" dovetails into his business.

"You see," he continued, "we have our own peak loads just the same as your Telephone Company or The Western Union. Of course, the reason for this is simple enough. You can't take people to the theatres, the restaurants or the lecture halls in the morning. If you could change American daily life in this respect and the present evening usage were maintained, our existence would be the happiest sort of an arrangement."

One time a taxicab company located in another city endeavored to flatten the peak to which the taxicab man refers. A cut of 35 1/3 per cent. was offered to all those who would use taxicab service in the morning. But the scheme fell flat for this reason:

One morning Mrs. Black happened to see socially prominent Mrs. White shopping with a taxicab. Mrs. Black thought it all well and

good if Mrs. White attended a bargain sale; but when Mrs. White went to the sale in a taxi at marked down rates, it was too much—for Mrs. Black casually mentioned the cut-price trip to a friend, and so on. The man who tries to flatten the taxi peak should forget the cut-rate plan.

In the business of furnishing taxicab service to a city of Pittsburgh's size there are problems, and then more problems, until you can't see. Time is the paramount factor in each of them. As the consumption of time decreases, the number of problems becomes smaller.

For example, it would never do to let a patron forget that it costs ten cents for each quarter mile after the initial mile. A disgruntled patron would result. Likewise it would never do to let each driver return to a dispatcher's station when a fare could be picked up along the way. Each empty taxicab traveling to and fro means a cost of 31 cents for each mile so traveled. So the taximeter is built to remind the passenger that it is costing him money to jog through the park. And the telephone is arranged to flag the driver who is out in the suburbs. It enables him to pick up a fare in the locality, and the empty hauls at 31 cents a mile are reduced and almost eliminated.

In applying Bell service to its business, the Pittsburgh Taxicab Company went about the question in this fashion: First, it made the telephone number "Hiland 4400" a synonym for taxicab service. Two and one-half years ago the taxicab company was organized. Two years ago the following phrase appeared on the "backbone" of the October directory: "For a Taxicab Call Hiland 4400." That space has been used continually since 1909, and to-day "Hiland 4400" is the best-known telephone number in Pittsburgh.

"Pittsburgh's topography is ideal for the taxicab business," said a taxicab man a few days ago. "In fact, the city is really three towns in

one. Most of the hauls are confined to each locality, and the long money-losing trips are eliminated."

The sections to which this man referred are the East End, Down Town and the North Side. This bit of geography was taken into consideration when the taxicab concern's telephone plant was arranged.

The Pittsburgh Taxicab Company has 25 Bell telephones and 21 of them are taxicab stations, from which dispatching is done. Three trunk lines connect the company's private branch with "Hiland," the East End exchange. There is a tie line that connects the private exchange with a small board at the Fort Pitt Hotel. From the Fort Pitt direct lines connect with down town taxicab stations at theatres, hotels, office buildings, etc., as shown on the accompanying diagram.

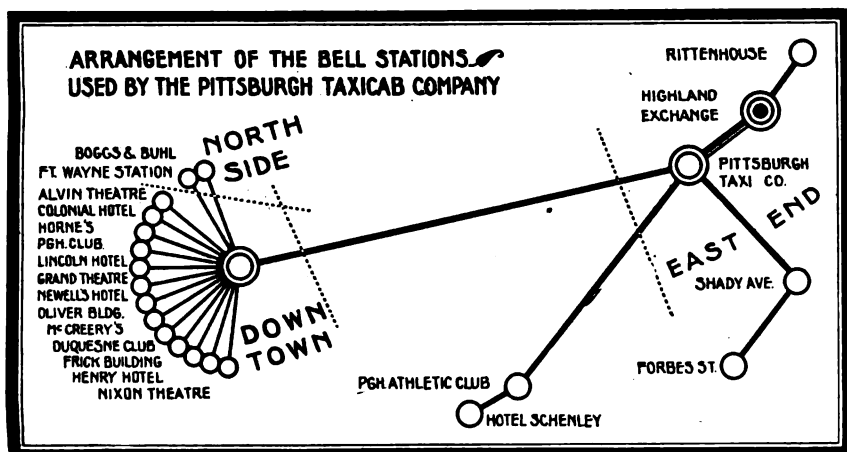
The East End being a residential section, no difficulty in dispatching is experienced. Calls are naturally sent to the company's office and garage, which is situated in the center of this section. But it was in this part of the city that for some time long hauls without passengers made big leaks in the revenue. The management found the answer a few months ago. The trouble arose from the inability to flag cars in the residential outskirts. So a Western Electric police telephone was placed at Shady and Northumberland Avenues and another at the corner of Murry and Forbes Streets. These intersections are quite a distance from the garage and Rittenhouse stations and effectually shut off the empty haul.

When the police sets were placed in operation, each chauffeur was given a key and instructed to make stops at these stations. If the driver's services are needed in the immediate neighborhood, he is dispatched.

In the old cab and hansom days, costs were not considered as in these times. Quite obviously it takes more training to steer an automobile successfully than it did to pilot a cab horse. Naturally a higher class of man is employed to do the work. The old-fashioned cab man did about as he pleased, but the taxicab chauffeur is under check each minute of his working day. The checking is accomplished in a large measure by means of the telephone.

Suppose a driver leaves the garage at 6.20 P. M. His destination is the Frick Building, a distance of four miles from the garage. This





man's departure and the reading of his taximeter are noted at the garage. When the four-mile trip is completed, he steps to the Frick taxicab station. Then the attendant calls up the garage and compares notes. If two hours have been consumed the taximeter registers twenty miles and the chauffeur has only \$1.75, there is something wrong and the management learns the reason in very short order. The taxicab people study their business day and night, Sundays and holidays. As a result, telephone service is used efficiently, not needlessly.

"We aim to be paid reasonably for every single mile covered," is the way the manager introduced the subject of efficiency. "Everything is figured on a mileage basis, even our executive salaries. We are doing business by the mile in every sense of the word."

"You will recall that the taxicabs are being repainted and a gray color is being substituted for black. This is not alone for artistic reasons. Through painting a cab for the Hotel Schenley, we found that it was easier to keep a yellow body clean. Since that was true, gray would be still easier, so we are changing all of the machines."

"We could build a complete machine from the stock of extras kept in the garage. There is always one engine being rebuilt in our machine shop and one cab being painted in the paint shop. We gather every bit of oil-soaked waste, press out the oil, filter it and use it again. Of course, after the squeezing, the waste is about as good as new."

"Whenever a driver tells us that he can't get 15 miles per gallon out of his machine, we simply give him some other man's car. Then if he fails to get the 15 miles, we know it is the man who is at fault. Forty-five machines running day and night, 365 days in the year, use a lot of tires. The taxicab company buys its tires by the mile. A well-known concern contracts to furnish tires during the whole year. The contract is made at so much a mile. The contractor vulcanizes cuts when they first appear, then shifts from rear to front wheels in such a way that the tires average 4500 miles, while the initial guarantee is for 3500."

"You can see that our use of the telephone is in line with our other practices. Whenever there is anything that will save time, we do not hesitate to adopt it; for time is money in our business in every sense of the word."

Election Returns

Philadelphia Newspapers Make Unusually Heavy Demands on Bell Service

The Mayoralty contest just ended in the city of Philadelphia was one of the hottest ever waged. As usual, this Company was called upon to make extraordinary efforts in the way of keeping the public informed of the progress of the returns on election night.

The special equipment placed in service this year was, if anything, more extensive than ever in a local contest.

The Philadelphia *North American* arranged for 50 additional lines and stations to be used in connection with its busy and efficient bureau of information known as "Walnut 750." A direct connection with the city Electrical Bureau also was established with this paper.

The Press had 18 additional stations and 5 trunk lines. This was reinforced by 50 direct lines from the "Market" office.

The Evening Times, *The Record* and *The Ledger* each arranged for 20 direct lines and stations.

The Inquirer had 30 additional lines and stations and *The Telegraph* 15.

Aside from this, *The Ledger*, *The North American*, the Art Club, Mr. Earle, the Republican candidate, and Senator Penrose had direct lines from the Electrical Bureau in City Hall to their offices and buildings.

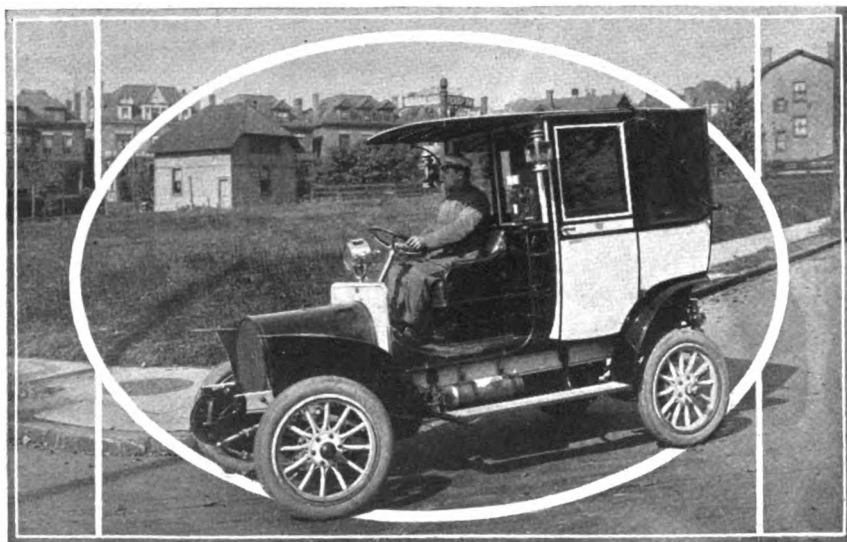
The Bulletin depended on its regular private branch exchange equipment to handle the increased traffic, with the additions of special lines to the headquarters of the Keystone and Republican parties. A special line to Fifty-second and Market Streets also was run for this paper, and one to Kensington Avenue and Adams Street.

Probably the most interesting feature in receiving returns was that of *The Press* and *Inquirer* in which both of these papers placed special corps of men in the streets to gather election news. All of *The Press's* 50 men and *The Inquirer's* 30 men depended on Bell service to relay their news to the papers. These reporters were scattered throughout the city and hunted up every available item of news during the day and evening until the last returns were turned in.

Danger Ahead.

"What does a red pin on the switchboard mean?" asked an operators' school instructor not long ago.

"Fire," exclaimed a student, anxious to make good.



Notes of the Pioneers' Meeting

"The C. D. & P. representatives made their headquarters at the Parker House," said J. H. Boeggeman on his return to Pittsburgh from the gathering of the Pioneers. "We set up shop at that hotel and placed on exhibition a directory of The C. D. & P. Company showing 52 subscribers for printing telegraph service. The book was dated about 1875."

"Alexander Graham Bell's talk was the most interesting event of the whole gathering," continued the Division Auditor.

"Six of us went to the session and we all feel indebted to the New England people for a good time. Our party stuck together all through the two days and emerged as follows: H. T. Sapp, Steubenville; J. K. Stitt, Salem; D. J. Murphy, Uniontown; P. G. Reynolds, A. K. Dement and myself from Pittsburgh."

"I was glad to see H. J. Curl again. He antedated A. C. Terry as Manager for the A. T. & T. Company in Pittsburgh, and went to Kansas City about ten years ago. B. R. Hopkins, now of Boston, is another Pittsburgh man."

"We went out through Harvard University in a machine," relates D. J. Murphy. "Our car was decorated with a number of Bell blue pennants. I noticed the students looking over our outfit rather carefully. Then it dawned on me. We were carrying blue banners through a territory in which another color is a decided favorite."

The November 1 issue of the *Telephone and Telegraph Age* had as a supplement very well executed 6 x 8 half tones in sepia of Dr. Alexander Graham Bell and Theodore N. Vail. This is a semi-monthly published at 253 Broadway, New York City. Single copies are ten cents.

Washington Division

R. G. HUNT, Division Correspondent

Service in the Washington office of the Title Guaranty and Surety Company, of Scranton, Pa., has been changed from one party flat rate business service to a message rate private branch exchange with 2 trunk lines and four stations.

A suburban subscriber came into the Washington Commercial office the other day with a novel proposition. He stated that he was away from home without funds, that he did not have enough money to take him back. Being a subscriber of long standing, he asked us to advance him enough money to cover the railroad trip and to debit it to his telephone account. Then we explained politely but conclusively that the proposition could not be entertained.



Organization Changes.

In Philadelphia the "Central" Commercial District will hereafter be known as the "Philadelphia" District.

The position of "District Manager" has been abolished in the Philadelphia District and the functions heretofore exercised by the Contract Manager and the District Manager are vested in

(a) Contract Manager

(b) Cashier

W. W. Henderson has been appointed Cashier, Philadelphia District.

J. M. Brown, Jr., has been made Chief Clerk, Philadelphia District, reporting to S. E. Tinkler, Jr., Contract Manager.

The following persons are authorized to accept contracts in the Philadelphia District:

S. E. Tinkler, Jr., Contract Manager

J. M. Brown, Jr. }

W. Goodman }

M. Q. Evans }

Over the title "Contract Agent."

Employees above authorized to accept contracts have been authorized also to approve line orders covering installation of ten foot cords.

The Cashier, Philadelphia District, has been authorized to adjust claims for rebates and cancel charges for service when the amount involved does not exceed \$3; also to adjust and waive termination charges, as per General Order No. 33, Series of 1909.

R. E. Patterson, Assistant Cashier, Philadelphia District, has been authorized to adjust claims and cancel charges to the limit of the authority conferred upon the Cashier, also to adjust and waive termination charges, as per General Order No. 33, Series of 1909, in the absence or disability of the Cashier.

W. P. Hull has been made District Manager, Germantown, vice J. M. Brown, Jr., transferred.

H. Matthews has been appointed District Manager, Chester, vice W. P. Hull, transferred.

Miss M. P. Smith, formerly Instructor of the Traffic School at 254 South Fourth Street, Philadelphia, has resigned and has been succeeded by Miss M. D. Cardwell, formerly Toll Chief Operator. Miss M. McLoughlin has been appointed Toll Chief Operator.

R. W. Stake, Agent at Frederick, Md., was on November 1 appointed Local Manager at that place.

Baltimore Division

J. R. BROHAWN, Division Correspondent

October was a banner month for Baltimore. All sorts of business-getting records were broken for the present year. Included in the new business were 16 private branch exchanges with from 4 to 15 stations each.

Among the branch exchanges to be cut over in October was the new Emerson Hotel. The cut was made on Monday, October 30. The equipment consists of a 3-position switchboard and 408 stations. The Emerson is one of the finest hotels south of New York. It has the most up-to-date conveniences. Mr. Emerson visited all of the large European hotels for his ideas, and has succeeded wonderfully in offering to the public the best.

Advertising has been the one thing that the merchants of Baltimore have been a little backward in adopting. They now are beginning to advertise the city as well as their goods. Only recently the merchants of Baltimore raised \$20,000 to send the Fifth Regiment, Maryland National Guard, to Atlanta, Ga., to the unveiling of the Peace Monument. It proved a splendid "ad" for the city.

It is pleasing to note, also, that Baltimore merchants are beginning to realize the fact that no better advertising medium can be had than this Company's directories.

A subscriber recently ordering the disconnection of his telephone on account of his removal to New York, said in part: "Our relations have always been most pleasant—during the whole ten years of our business intercourse—and it is with great regret that I am compelled thus to sever them. I hope to receive the same sort of treatment from the New York Telephone Company."

From Austria came, the other day, a signed application for telephone service in the city of Baltimore. The accompanying letter read in part:

I enclose contract signed as you directed in your letter of September 27. The extension telephone desired is a desk equipment at the head of the bed, second-story front, on the side farthest from the street. This is where it was before.

Please install any time between December 10 and December 15. Address care of Munroe & Co., Paris.

Westminster District. The Tidewater Portland Cement Company of Union Bridge, Md., has signed for a private branch exchange with ten stations, to be installed in their Plant. The Tidewater Portland Cement Company is one of the largest business concerns in Union Bridge. The former service consisted of a direct line with two extensions.

ALLGIRE.

Havre de Grace District. A young Italian boy stole a horse from one of his countrymen living on a farm near Oakington, Md. When the loss was discovered an alarm was sent through the county by Bell telephone, and the horse and rider were captured by a deputy sheriff four hours later at Upper Falls, about 20 miles from Oakington.

The Sheriff of Harford County, in commenting on the theft, said: "The telephone, as usual, played a most important part in the capture and subsequent lodging of the prisoner in jail at Bel Air, where he now awaits the action of the November Grand Jury."

GERBER.

The Local Manager at Salisbury negotiated three rural line contracts during October.

On October 25 the Onley Rural Telephone Company was organized at Onley, Va., with 11 subscribers. It will connect with the Onancock Exchange. The Fruitland Road Telephone Company was organized on October 18, with eight subscribers. This company will connect with the Salisbury Exchange. It extends about three and one-half miles in the county and reaches some of the most progressive farmers in that section. The Airey's Rural Telephone Company was organized on October 25, with 11 subscribers, and will be connected to the Cambridge Exchange. The line is seven miles long and runs through a prosperous country.

On account of being transferred an employee of the Plant Department at Cape Charles, Va., requested his telephone removed from his boarding house. The Commercial representative called on the landlady with a view of obtaining a superseding application. During the interview he related to her the advantages of telephone service in case of sickness and other emergencies. She remarked that she had been fortunate not to have had any such troubles and refused to sign the contract. A disconnection was ordered, but when the Plant man went to remove the telephone he found that one of the family had been taken ill with diphtheria and the telephone was disconnected from the outside only. A few days later the Onancock Commercial Office was called by one of the subscribers, a nearby neighbor, and advised that the landlady desired the service restored, as she was unable to get anyone to come to her house except the physician, and with the aid of the telephone her wants could be supplied. The contract was forwarded and duly executed.

CARTY.

A Suggestion

It may seem a far cry from telephones to phonographs, and the fact that we mention it does not say that we advocate such a plan, but one of our Philadelphia subscribers returned a suggestion slip sent out with recent bills with this comment:

"Have phonographs attached to telephones to record messages when we are not there to receive them. This may read like a joke, but think about it."

Changes in The Central District & Printing Telegraph Company

W. L. Beal
R. G. Somerville
B. F. Lenhart
Clarence Greenwood
R. R. Klein
Wm. E. Menges
C. E. Smith
H. F. C. Kloss
O. C. Zimmerman
P. E. Miller
G. M. Fryman
J. W. Mason
Frank Mayer
Clara Zimmerman
H. H. Hillegass
Wm. J. Heyl
R. J. Lorigan
H. A. Bishop
Geo. Hayden
P. J. Wittman
H. F. Carpenter
C. Leslie
D. M. Sparks
Roland Kappler
M. J. O'Brien
W. A. Yeager
E. J. Kelly

Clerk to Estimator
Student to Installer
Installer to Storekeeper
Student to Installer
Student to Installer
Student to Installer
Stock Clerk to Storekeeper
Helper to Splicer
Climber to "B" Foreman
Student to Installer
Installer to C. O. Man
C. O. Man to Wire Chief
Adjuster to Salesman
Clerk to Cashier and Clerk
Fieldman to Field Engineer
Student to U. G. Inspector
Student to Installer
Wire Chf to Toll Wire Chf
Lineman to Repairman
Student to Installer
Toll Lineman to Foreman
Helper to C. O. Man
Sr. Inspector from C. O. Man
Installer to Inspector
Installer to Inspector
Installer to Swbd. Repairman
Student to Installer

Engineering Division.
Plant School to Charleroi, Pa.
Storekeepers.
Plant School to Installers.
Plant School to Installers.
Plant School to Installers.
Plant Supervisor's Office, Wheeling District.
District Cable Crew, Wheeling District.
District Cable Crew, Wheeling District.
Plant School to Short Line Crew, Wheeling District.
Parkersburg to Uhrichsville, Ohio.
Uhrichsville to Wheeling, W. Va.
Johnstown, Pa.
Johnstown, Pa.
Engineering Division, Pittsburg.
Plant School to Engineering.
Plant School to New Castle, Pa.
Sharon, Pa.
Class "B" to Cedar.
Plant School to Short Line Crew, Wheeling District.
Meadville, Pa., to Line Crew No. 2, New Castle Dis.
Cable Crew to Rochester, Pa.
Grant—Pittsburg District.
Installers to Grant.
Installers to Grant.
Short Line Crew to Wheeling, W. Va.
Plant School to Short Line Crew.

Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Camden District. During the month of October our Plant Department has replaced 29 trolley poles with 29 40-foot poles between Seventh Street and Haddon Avenue, and along Kaighns Avenue, Camden, N. J. It also replaced on South Third Street, between Line Street and Kaighns Avenue, 18 trolley poles with 40-foot poles and pulled 5,500 feet of 50-pair No. 19 gauge cable, 600 feet of 60-pair No. 22 gauge and 2,900 feet of 50-pair No. 22 gauge cable. This new plant will enable the Company to give service to subscribers on and along these thoroughfares and will remove several hazardous conditions previously existing in the neighborhood.

In addition to the above the Plant Department has completed 1,570 feet of 4-duct underground. This will feed about ten laterals, giving service to subscribers between Chestnut, Marion, Liberty and Fourth Streets, heretofore having no plant except on public service poles and roof attachments.

On Collingswood Avenue, between Collingswood and West Collingswood, 3,300 feet of 100-pair No. 22 gauge aerial cable has been pulled. This has been done to take care of the old open wire plant, formerly serving subscribers in Oaklyn and West Collingswood.

North Merchantville, in Pensauken Township, formerly without Bell service, has been added to our growing list of places. The Plant Department has just completed the work of running 3,500 feet of 25-pair No. 19 gauge and 3,500 feet of 50-pair No. 19 gauge aerial cable. In addition to serving North Merchantville, this will provide service for subscribers in Delair, 18 of whom have already applied for service.

Dover District. A society connected with one of the Granges in central Delaware held a debate one evening recently on the advantages of "Farm versus City Life." For a time it looked as though the team in favor of city life had out-pointed the ruralites by painting a beautiful picture of the many advantages of city life—the theatre, the delights of shopping and all the pleasures incident to a large city. The lovers of farm life had a formidable array of arguments in favor of the country—fresh air, fruits and vegetables, the free life for the children, the social benefits derived from pleasant neighborly friendships, and so forth.

Finally the city team fired its parting shot in laying stress on the advantages of being able to secure a doctor or help in case of emergency, but they did not reckon the telephone in their calculations. The farm team was quick to see the weak point and rose to the occasion with the retort that the telephone enabled them to get a doctor or aid just as quickly in the country, and that they could summon a neighbor from the adjoining farm as quickly as they could find a policeman in the average city. The judges awarded the prize to the farm team, and incidentally discovered that every farmer present had a telephone, and some had two. PRINCE.

Doylestown District. The second joint telephone-telegraph office in the territory of the Atlantic Coast Division was opened October 15 in the Company's building at Doylestown, Pa. The telegraph equipment is all of the latest type and was installed in a very workmanlike manner by the employees of the Western Union Telegraph Company under the supervision of the

Plant Chief of The Bell Telephone Company of Pennsylvania.

Several expressions of approval have been received from patrons of both companies on the combination of the two offices.

An application has been recently secured from the Victor Box Manufacturing Company at Quakertown for the installation of a monitor switchboard with one trunk and five stations. This application supersedes a contract for direct line telephone service.

Norristown District. A Norristown subscriber recently called at the Business Office and stated that she wished to thank the operators for their courtesy during the illness and subsequent death of her mother. She further stated that the telephone had been a great comfort and convenience and she wanted the Company to know that she appreciated the kind treatment that she had received.

Trenton District. On November 1 a joint telephone-telegraph office was opened in the Central Office of the Telephone Company in Mt. Holly, N. J. By this move the Western Union Tele-

graph and Cable office is now located in a more commodious office than formerly, and all of the instruments and other fixtures are new and of the most improved type.

The Telephone Company will now maintain, in connection with the Western Union Telegraph office, a business telephone office where the subscribers of the Mt. Holly Exchange can transact their business. The Morse operator, for many years local Western Union manager, is Miss S. M. Asay, who now becomes a Bell employee.

On October 31 a Class "A" joint telephone-telegraph office was started at the Trenton District Manager's Office. The first message received on the opening day was written in Italian, and as no one could transmit Italian, it was necessary to pass the message by messenger to the Western Union Company.

A new private branch exchange contract has been closed with one of the large potteries in Trenton, covering two trunks and 20 stations. This replaces three Bell lines and seven stations; also an opposition branch exchange of 14 stations.

GARWOOD.

Directory Advertising Growth

The accompanying diagram indicates the progress that is being made in the sale of directory advertising. The gross revenue, represented in the fifteen October, 1910, directories shown, is compared with that in the May, 1911, and October, 1911, issues. (It is to be noted that the scale for Philadelphia, Baltimore and Washington differs from that of the smaller directories.)

A review of the past two years tells an interesting story of the growing popularity among local merchants of these directories as advertising media. Only two years ago the gross directory advertising revenue represented in all of the directories of one division of this Company was less than \$2,000; to-day these same directories carry a revenue representing a gain of over 400 per cent. Two directories in this one division show special progress, having made a 600 per cent. gain during the past year and a half.

Observing that the last issues of all but two directories show a gain over the corresponding issues of the previous year, it is perhaps only fair to assert that this condition is what should be expected from the advertising medium we have to present. The newspapers have been carrying advertising for over a hundred years. Their columns have long been identified with news and other contemporaneous matter of such a nature as to make the obtaining of advertising seem an easy task. Yet with all the educational work that has been done in behalf of newspaper advertising, success, from a financial standpoint, has been assured only within the past forty years.

With the magazines progress came more apace,

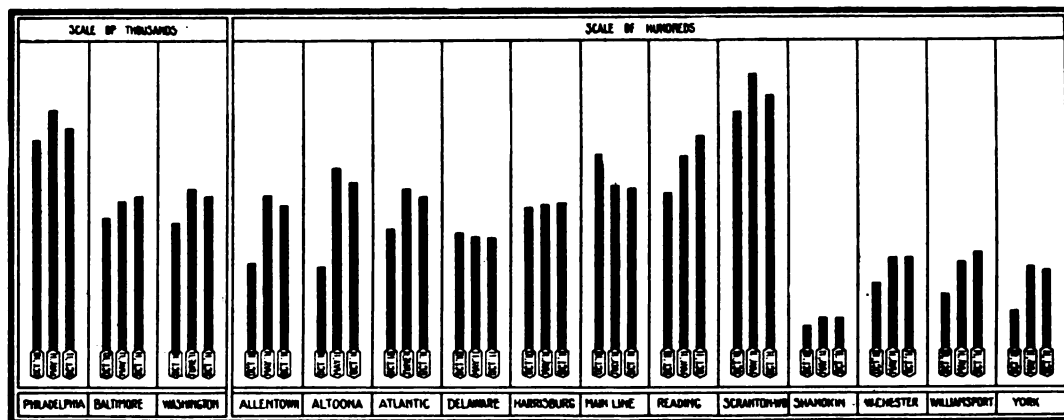
yet it must be remembered that when the latter began their cry for advertising patronage the road had been well paved, the rough corners knocked off, as it were, by the pioneer educational work done by the newspapers.

Space in the telephone directory was first offered for sale at a time when the local and national distributor had become comparatively well educated in the field of advertising as a general trade producer. It has remained for the telephone directory advertising salesman to bring out the superiority of his medium, accentuating points such as its wide distribution among the representative classes, its constant use, and its particular adaptability in securing trade over the telephone which has now become a paramount factor in modern trade.

To what extent directories are now patronized and how well these arguments have been presented is told by the chart. It is not felt that we should rest satisfied with our present attainment.

In the August 1, 1911, issue of this paper appeared an editorial suggesting a thought which, if generally followed by this Company's employees, will increase the directories' popularity among their advertising clients.

Quoting from this editorial: "As we from time to time purchase by telephone, may we not consider these advertisers?" The above seems to present a thought which can be carried still further. Outside of business hours we frequently hear questions something like this: "I wonder where I can buy such and such an article?" If we happen to know that a firm advertising in the directory has this article for sale, is it not proper for us to bring this fact to the attention of the questioner?



Pittsburgh Division**L. W. GRISWOLD, Division Correspondent**

Pittsburgh District. Not long ago the manager of a steel construction concern wrote a letter to this Company, the substance of which is the following:

We have discovered that your man made a mistake and connected the Bell telephone to opposition wires. Will you please have this telephone disconnected from the Opposition Company's wires and connect it with your own system?

This was such an unusual case that news of the mistake traveled rapidly. The Plant Department investigated and learned that the telephone was an opposition set connected to opposition wires. When the steel manager learned of this he hastily retracted the letter which implied so much carelessness on the part of the installers.

Pittsburgh toll operators have just completed a special campaign which had for its object the cutting down of the "lost call" percentage. "Every girl worked hammer and tongs," said a Traffic man the other day, "and it was fine to see the interest taken in the campaign." While the number of tickets handled during October was more than 4,000 in excess of those used in September, the "lost call" percentage dropped from 17.1 to 11.6. More than 60,000 toll tickets were recorded during October.

Bell patrons often show their gratification that results from the completion of difficult calls. The operators feel repaid by this display of interest and at times unusual requests are made by pleased subscribers. For example, a Pittsburgh business man wrote a letter in which he asked that a particular operator, whose number he gave, he delegated to handle all of his toll business. Of course this request could not be complied with, but the young woman who had been complimented in this way was very much gratified.

A young woman applied for work as a telephone operator. She was quite a student of the Bible, and when she filled out the application blank the dotted lines under "References" puzzled her. After some deliberation she wrote "The Lord is My Shepherd" on one line and "I Need Thee Every Hour" on another.

Erie District. In the Erie, Pa., directory the following listings appear:

Farrell, Miss Mayme, Res., 1370 W. Pleasant, 137-L
Farrell, Miss Mayme, Res., 1327 W. Pleasant, 137-R

These listings, which seem like repetitions, refer to distinct subscribers. But the subscribers have other things in common besides the street, name and telephone line. Both are operators employed by our Company at Corry and they look very much alike. They are not related to each other, although they are frequently seen together. So strange did these listings appear that the Pittsburgh Division Auditor of Receipts recently wrote a letter asking the Erie Local Manager to go into the situation and get the facts. The above facts were embodied in the reply to the letter.

During a recent campaign at Erie, Pa., in which some public-spirited citizens undertook to raise \$150,000 for the benefit of a local charitable institution, Local Manager Knott, after having a Bell telephone installed at the campaign headquarters, assigned "150,000" as a signal number for this telephone.

To express its appreciation, the committee

wrote Mr. Knott a long letter, thanking him for his thoughtfulness.

ANTHONY.

Greensburg District. Trial of a man by telephone, says a Pittsburgh daily paper, occurred to-day when Justice of the Peace W. I. Hunter, of Greensburg, accepted the plea of "guilty" of a Pittsburgh contractor over the wire and the case was settled.

The Pittsburgh man was accused of violating the speed laws when he passed through Greensburg last Sunday evening. The license number of his automobile was taken and a warrant issued for his arrest. Constable Harry Hazlett went to Pittsburgh to-day and the contractor was ready to admit his guilt and pay the penalty, but he did not want to make a trip to Greensburg. The justice's office was called by telephone from Pittsburgh and Constable Hazlett stated the case to Justice Hunter, who took the offender's plea of "guilty." "Ten dollars and costs," replied the justice. The constable returned to Greensburg with the money.

The Plant Department is now installing a very complete underground plant in Johnstown. It extends from the central office to Moxham, 12,332 trench feet and 69,292 duct feet, to Morrellville, 9,250 trench feet and 57,745 duct feet; toward Franklin and Conemaugh Boroughs, on Railroad Street, 2,611 trench feet and 17,088 duct feet; to Kernville, 7,686 trench feet and 20,839 duct feet. In addition to the present plant in the central part of the city, 1,250 trench feet and 2,500 duct feet are being installed. This makes a total of 33,129 trench feet and 167,464 duct feet. In connection with the system there will be 125 terminals and 140 manholes. The work is in charge of J. L. Elliott of the Engineering Department, and will be completed about November 25, 1911.

In a recent copy of the *Latrobe Bulletin*, containing an account of contemplated plant improvements to the Bell system in Latrobe, as suggested in a recent Publicity Bulletin, the editorial columns gave quite an elaborate statement relative to the telephone as a barometer of business conditions, setting forth the idea that since the Bell Company had seen fit to make improvements to its plant in Latrobe, the townspeople could feel reasonably certain that this fact evidenced good times in general for the town.

HUGUS.

Uniontown District. The Sewickly Rural Telephone Companies, No. 1 and No. 2, operating near Connellsville, Pa., have signed traffic agreements. There are now 17 subscribers. A No. 3 company of the same name is now being organized. All these companies will be served from the West Newton Central Office.

Not long ago a patron called from a public station and said he was particularly anxious to talk with a friend in Grafton who had a Bell telephone. The operator who received the call searched the records but could find no mention of a Bell station at the address given. Then she called a Grafton real estate man and learned that the Chief of Police kept a record of all residents recently coming from other localities. The operator called this exponent of the law, gave the name of the desired person and learned that he had just moved to town and his telephone was still in the name of a former occupant. This telephone was called and the message was completed.

Another case occurred in calling a small town just at noon time. It was impossible to get a messenger at the terminating point. The operator, however, was about to go to dinner, so she stopped on her way home and asked the desired person to step to the telephone. In this way the call was saved.

CAHOON.

Harrisburg Division**J. C. WEIRICK, Division Correspondent**

Allentown District. On October 20 the Patrons' Telephone Company of Warren County, N. J., completed the installation of a 60-line switchboard at Hope, Warren County, N. J. Fifty-four subscribers were connected. The West Jersey Toll Line Company, a connecting company at Belvidere, N. J., furnishes a trunk line from Belvidere, N. J., to Hope, N. J., until the Patrons' Company has completed the trunk line to Belvidere.

A subscriber while paying his telephone account noticed the poster, "They're at the Rear Window," which is displayed on the front of the cashier's counter in our Commercial office. He remarked that this actually happened at his residence when his daughter was awakened early one morning. She summoned the police, who surrounded the building and captured two burglars.

An advertisement calling attention to the business and the fact that the firm has Bell service appeared in the *Bethlehem Times* during one recent week, and Mr. Beysher, proprietor of the Wyandotte Dyeing and Cleaning Establishment, told a representative that he kept one person busy half of the time taking orders over the telephone. He considered this advertisement the best he had since he had been established in business.

An example of excellent Traffic coöperation is given here: While motoring from Boston to Delaware Water Gap a party of tourists passed through Bethlehem and stopped to buy some souvenir postal cards. After arriving at Easton one of the women discovered that she had lost her purse containing a considerable sum of money. She asked our public telephone attendant in the Commercial office if we could locate the store at Bethlehem where they had purchased their cards, as they were unable to give the name of the store. In a few minutes we were able to connect them with the man who had found the purse. He agreed to send it to the Delaware Water Gap, their next stopping place.

Altoona District. At Tyrone, Pa., the new common battery switchboard has 4 positions providing for 300 local, 20 rural and 25 trunk lines.

By closely following the complaints received concerning party line interference, we have been able to re-sign 75 per cent. of the complaining subscribers to better classes of service.

During a period of one year, ending August 1, 1911, the number of stations on one-party lines at Altoona has been increased from 255 to 920, a gain of over 300 per cent.

A traveling salesman recently came to our Altoona office, and, stating that he did not like to deprive a subscriber of the use of his directory, requested permission to remain in our office for an hour to examine our directory, as he has found that it is more up-to-date than the city directory.

A representative of a Philadelphia bond house recently made 21 calls, from our attended public telephone at the Altoona Commercial office, to different parts of the State. After the calls had been completed he advised that he had sold bonds to the amount of \$116,000 at a cost in tolls of only \$12.90.

The Western Electric Company has completed the installation of nine new positions to be added to the Altoona switchboard.

A Huntingdon merchant recently received a consignment of goods before they were expected

and while he was making alterations to his building; by telephoning the news to a list of preferred customers he was enabled to dispose of the greater proportion of the shipment and to avoid storage charges.

The Huntingdon Civic Association recently commended our Company when it was announced that we were about to expend \$3000 for improvements to our aerial construction at that point.

A check forger who cashed checks to the amount of \$85 with Huntingdon merchants was traced by telephone to three other places and finally located at Sunbury, where he was apprehended.

A Bethlehem subscriber ordered her party line disconnected because "she could not be annoyed with that service." She was changed to a direct line, after some persuasion, and has since commented very favorably on the improvement.

During October 8 private branch exchange changes and additions were obtained in this district aggregating from 6 trunks and 26 additional stations. There were also obtained 9 additional rural stations and one extra circuit affecting 6 connecting companies.

Harrisburg District. At 2.45 P. M. a few days ago a non-subscriber with a delayed telegram in his hand entered the Lancaster Commercial office to call a certain party in New York. The call was placed and New York reported that the party had left, as it was 15 minutes later than the telegram had asked him to call. The man grew very much excited and the matter was taken up with the Traffic Department. Numerous attempts were made, and the New York party was located at about 9.55 P. M., when they had their conversation. The Lancaster caller was much pleased with the service rendered.

Scranton District. The following letters were received from subscribers at Scranton in answer to the "Thank You Cards" sent with their October receipts:

"I was glad to receive the enclosed card, for it shows you are trying to give the best service and should be appreciated by the public. This card is only a small thing, but it shows a spirit that I believe will do a great deal of good."

"Oh, yes! Stop ringing (—J) when some other number is wanted, and suppress the insolent Dutchman who angrily orders my wife to get off the line, when she answers the call. This would help some."

One of our salesmen called on this subscriber and received his application for direct line service.

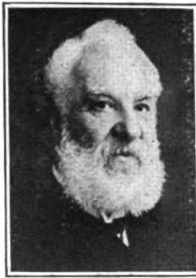
Wilkes-Barre District. The Hazleton National Bank, at Hazleton, Pa., has applied for a private branch exchange, No. 2, with 9 stations and 2 trunks. This service will supersede a direct line with one station.

The Wisner Store Company, of West Pittston, recently installed a burglar alarm system in its store. One night last week a railroad man returning from the Coxton Yards heard the burglar alarm ringing in the store. He immediately called the Chief of Police from the nearest Bell telephone, who rushed to the store and captured the thief as he was leaving the building.

The editor of the Pittston Gazette called the Chief Operator at that place October 17 and reported that the Gazette office had answered 365 inquiries in connection with the baseball game that afternoon between the Giants and the Athletics. The newspaper is receiving No. 2 private branch exchange service and finds it very satisfactory.

Dr. Bell at Pioneers' Meeting

THE Telephone Pioneers of America who met at Boston, Mass., November 2-4, had a most enjoyable trip. At the Hotel Somerset, where the organization was formed, they were fortunate enough to hear an address by Dr. Alexander Graham Bell, who styled himself "the first telephone pioneer."



A. G. BELL

A part of Mr. Bell's paper, which differs slightly from that given before The Telephone Society of Washington and appeared in THE TELEPHONE NEWS of April 1, 1910, is here reproduced from the Boston Globe. That paper has the distinction of receiving the first newspaper dispatch ever sent by telephone. Henry M. Batchelder, a reporter, sent it, describing one of Mr. Bell's early lectures. It was later reprinted in newspapers all over the world:

"From 1873 until the beginning of 1876 I was a resident of Salem, Mass., and came into Boston every day for my professional work. Then I would spend my summer vacations in Canada, at Brantford, at the home of my parents. So these three places—Salem, Boston and Brantford—are concerned in the early days of the telephone. Boston is par excellence the home of the telephone, for it was here that all the apparatus was made and where the important experiments went on. Brantford, in Canada, was my thinking place, where I would go and spend my summer holidays and look over the line of experiments that had been made in Boston and plan for the future. I generally went to Brantford about the middle of July, stayed there during the summer and was back in Boston the first of October.

"And so it happened that in the summer of 1874, during my visit to my father's house in Brantford, Ont., considering myself and discussing with my father the numerous experiments I had made in Boston relative to the reproduction of musical sounds by electricity for the purposes of multiple telegraphy, the thought of the membrane telephone was elaborated. So that the conception of the telephone originated in Brantford, Ont., in the summer of 1874.

"It was a theoretical conception of a magneto telephone, a very daring conception, if I may be allowed to say so—that the vibrations of the voice might create electrical impulses like the aerial impulses, and produce an audible result at the other end. To tell the truth, as a practical man, I did not quite believe it; as a theoretical man I saw a speaking telephone, that theoretically we had the means of transmitting and reproducing speech in distant places. But it really seemed too good to be true that you could possibly create electrical impulses that would amount to any practical purpose by the action of the voice itself.

"And so, on my return to Boston in October, 1874, and all through that winter and through the spring of 1875, instead of making apparatus and trying it, I was trying to devise methods of increasing the strength of these electrical undulations. I was working at what is now known as the variable resistance method. That is shown very well in a letter that I wrote to Mr. Hubbard on May 4, 1875, when I was experimenting on the passage of a voltaic current through a vibrating wire, with the idea that the variation of tension in that wire, by producing vibrations in the resistance of the circuit, would produce the electrical undulations that I desired.

"From the summer of 1874 up until June 2, 1875, the development of the telephone was de-

layed by this thought, that the magneto-electric impulses would not be sufficient by themselves and would require a battery current.

"Then came the discovery that a magneto-electric current would produce by itself sonorous effects at a receiving station and you may remember the plucking of reeds that went on that celebrated June 2, 1875. In a moment all the difficulties in the way of the practical solution of the telephone disappeared, and orders were given at once to construct the membrane telephone that was conceived in Brantford in 1874.

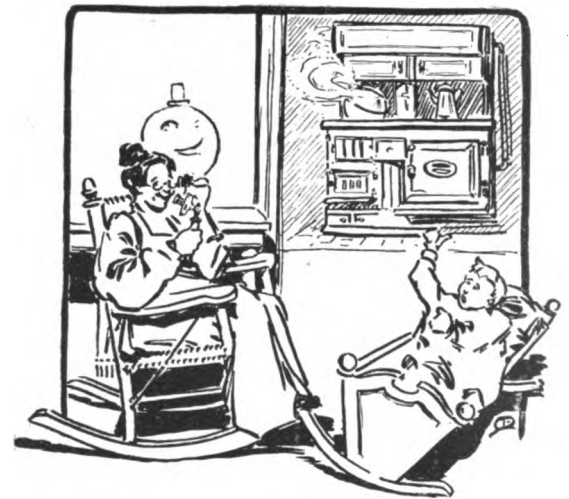
"When it was first tried it was somewhere about the end of June or July 1, 1875. We have present records of experiments on July 1, 1875, and I well remember these experiments. We had only one membrane telephone and the receiver was one of the old tuned reed receivers. It was held up to the ear. You crammed the armature against the ear to dampen its vibrations. I was listening at that armature while Mr. Thomas A. Watson, my assistant, was down in the basement of Charles Williams Jr's building, 10 Court Street, shouting at the end of the telephone, and then we changed places. I may say that I heard nothing. Then Mr. Watson went downstairs in a state of great excitement, saying, 'Why, Mr. Bell, I heard your voice very distinctly, and could almost understand what you said.'

"Well, that was gratifying, but it would have been still more gratifying if I could hear that, too. You see, Mr. Williams' workshop was a very noisy place, Mr. Watson was accustomed to that noise and could hear a good deal better than I. I was more accustomed to throwing out my voice than Mr. Watson, so that he had the advantage of me in hearing, and I had the advantage of him in speaking. The results would

be considered very unsatisfactory at the present time; yet, encouraged by the results, poor as they were, I went ahead immediately to prepare specifications for a patent. In September, 1875, I went at work upon the specifications of the now-celebrated patent. In October, 1875, the patent was completed. The patent was filed February 14, 1876; it was granted March 3, 1876. I was in Washington at the time when it was allowed. I know it was allowed on March 3, 1876, because that happened to be my birthday, and it came to me as a sort of birthday present."

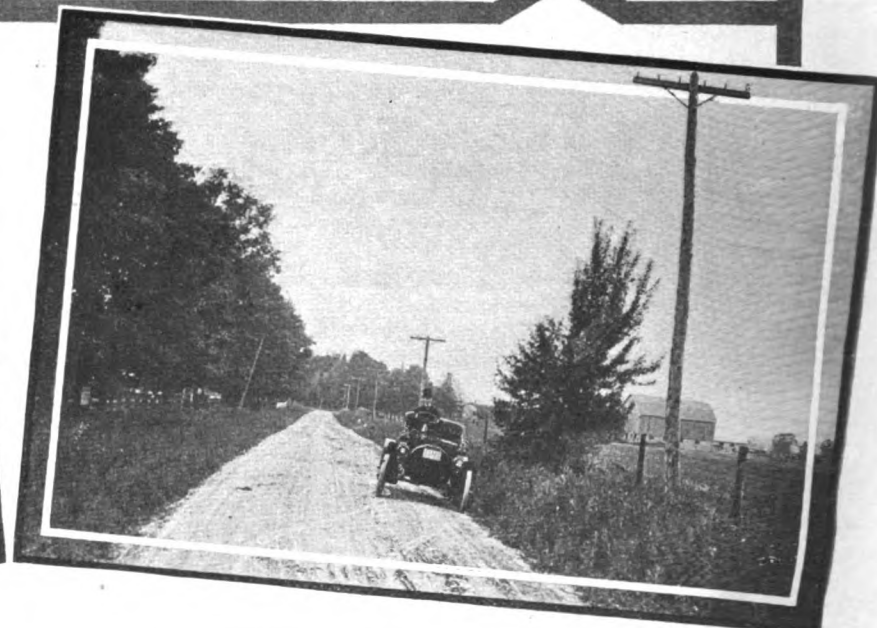


T. N. VAIL



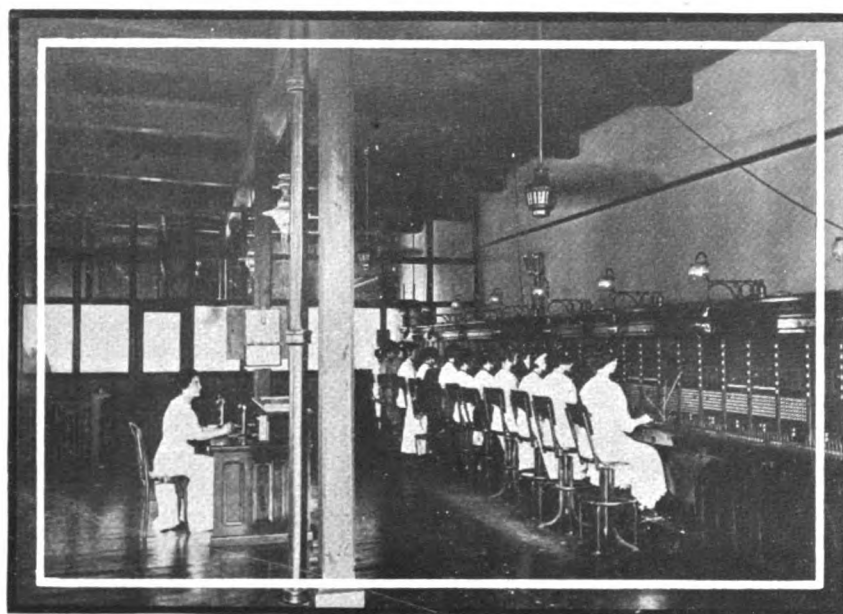
A subscriber called a Hazleton, Pa., operator and told her to call her in 15 minutes, in order that she might not forget to turn the bread which she had just placed in the oven. She said her baby had the colic and she was very much worried over its condition and thereby might forget the bread.

Views of Brantford, Ontario, Canada



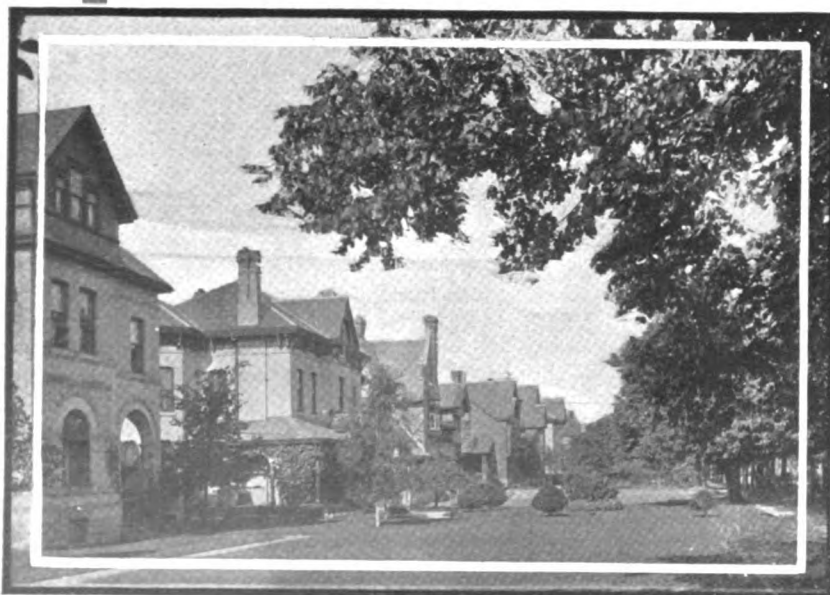
Upper: Summer Home of Alexander Graham Bell at Time of Invention; and Typical Rural Line in Vicinity.

Center: Brantford, Ont., Central Office as It Looks To-day.



Lower: Typical Residence and Business Streets in Brantford.

An Imposing Marble Memorial in Doctor Bell's Honor Will Be Dedicated Here on "Dominion Day," 1912.



Alexander Graham Bell's "Thinking Place"

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

DECEMBER 1, 1911

NO. 23

Bridgeton, New Jersey

A Community Developed Largely by the Agency of the Telephone

POTATOES, tomatoes, cabbages; beets, carrots and beans—sounds rather prosaic, doesn't it? But when you learn they're a few of the many prize products grown on the farms that surround Bridgeton, Cumberland County, New Jersey, you'll probably be at least lazily interested. And when you learn that these same farmers have achieved, in great measure, their wonderful stage of efficiency by the liberal use of telephone service, you may indeed be surprised—just as a few more of us were a short time ago.

To be frank about it, it was with decided misgivings that I "yielded to influence," piled out an hour or two earlier than usual on a frosty morning, and ferried across the Delaware when the sun was streaking the water with its earliest shafts and the tide of hurrying humans was all against us. But in Camden we settled back in the cozy comfort of an electric train "smoker." Things began to look brighter. After we had sped southeast for an hour, straight into the face of the mounting sun, we came to Bridgeton—and by that time I was fully reconciled to the loss of those comparatively unimportant minutes of morning sleep.

For Bridgeton proved unusual from the start. Unusual, especially, in its atmosphere. There was an air of life about the place that I had not imagined possible in a city of 15,000. People stepped lively. Corner loafers were *not*. The streets rumbled with vehicles. Handsome modern trolley cars swung past; an occasional automobile followed. Stores and shops abounded, they bordered the streets in every direction. The place was decidedly alive. And lastly, there was the spick and span new office of our own Company, right in the midst of everything, on Laurel Street. This central office, by the way, is the first joint telephone and telegraph office to be equipped in this Company's territory. It is furnished with the most up-to-date appliances for efficient and economical transactions of both telephone and telegraph business. Its exterior presents to Bridgeton citizens a front fully up to the standard of its furnishings. It is illustrated on another page of THE TELEPHONE NEWS.

"Anything unusual going on to-day?" I asked our people when we reached the central office. I referred to the apparently extraordinary amount of traffic on the streets.

"No, nothing unusual. But you see, this is the wind-up of the busiest season Bridgeton has ever had. It is the center of a remarkably fertile farming region, you know, and every day the town is pretty well filled with trading farmers."

My informant seemed to be well posted on local matters, and I immediately asked him to take me in tow and tell me what he knew of his community while we took a walk around the town.

(Continued on page 5)

Conservation and the Wire Service*

F. H. Bethell, Vice-President of the Companies

WE hear much these days of Conservation, of Efficiency Engineering and of Regulation by Commission. Conservation is a broad and complex question; one that has been discussed from every viewpoint, and with opinions conflicting as to its proper application. There should be no question, however, as to its proper application in the wire service.

I believe that the principle underlying Conservation—the prevention of waste—the stopping of abuses now existing—is the principal upon which Efficiency Engineering and Regulation by Commission are based; and therefore it is my opinion that in considering Conservation in its broad sense, we are brought to a consideration of the other things.

We Americans are known the world over as a wasteful people. In the October number of the *World's Work* appears the following:

"The Heaviest Tax of all"

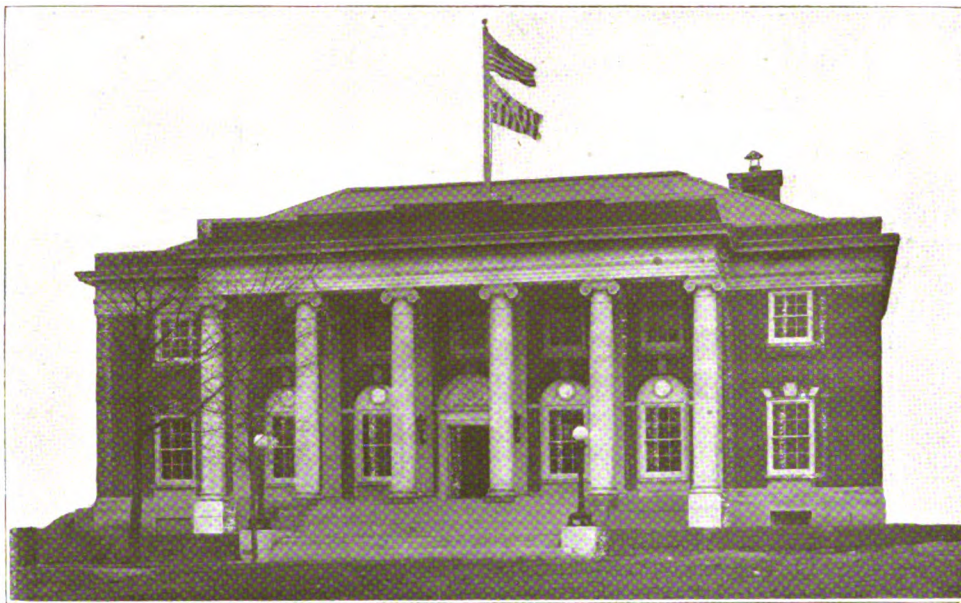
"The cost of living and the need of economy in American life—how we become excited about the subject for a while when the price of food suddenly goes up, and then how quickly we forget it! Yet on the lives of most families the pressure is all the time very hard. If there were no way to prevent it, it would be philosophical to bear it. But there is a way to prevent it; and there is no other lesson that the American people need more grievously to learn—rich and poor alike. Still many a man—many a man who is hard pressed to keep the financial gait that he has struck—scorns small economies, and regards old Ben. Franklin as the philosopher of niggardliness.

"It is a good sign that several of the great railroad companies should issue bulletins to their employees that contain such statements as these:

	Miles.
1 2-cent postage stamp equals hauling one ton of freight..	3½
1 lead pencil equals hauling one ton of freight.....	2
1 track spike equals hauling one ton of freight.....	2
1 track bolt equals hauling one ton of freight.....	3½
1 pound of waste equals hauling one ton of freight.....	10½
1 white lantern globe equals hauling one ton of freight.....	20
1 red lantern globe equals hauling one ton of freight.....	75
1 lamp chimney equals hauling one ton of freight.....	10½
1 station broom equals hauling one ton of freight.....	35
1 station water pail equals hauling one ton of freight.....	20
1 lantern complete equals hauling one ton of freight.....	100
1 gallon signal oil equals hauling one ton of freight.....	60

(Continued on page 3)

* Read October 24, before The Telephone Society of New York



Post Office and Custom House, Bridgeton, N. J.

The Telephone News

Published the first and fifteenth of each month in the interests of

The Bell Telephone Company of Pennsylvania
The Chesapeake & Potomac Telephone Company
The Delaware & Atlantic Telegraph & Telephone Co.
The Diamond State Telephone Company
The Central District & Printing Telegraph Company



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Vol. VII DECEMBER 1, 1911 No. 23

A Subscriber on "Courtesy"

The Joseph Horne Company, a Pittsburgh Department Store, has adopted and published in pamphlet form for its employees a number of sentiments for which we have been striving not only among ourselves but among our patrons. Excerpts are here given, and most heartily endorsed:

"In our own business the telephone is of tremendous importance. We must remember that the telephone is here in every department and that the other ends of our wires connect with thousands of homes in and around Pittsburgh. If we, of the store, do our parts in the proper executing of telephone orders, we have a business factor that can become of momentous importance. The secret of the telephone lies in the promptness, the courtesy, and, above all, the indefinable something that transmits itself over the wires to the customers.

"Perhaps it is in the tone of the voices that carries this influence. Whatever it is, the minute one hears a voice through the receiver, he gains an impression of the face and of the mental attitude of the person to whom he is talking.

"So it is to the interest of this business that all of us carry smiles in our voices.

"And we do not need to feel that this is done entirely for the sake of the business we serve, for we must never forget that we are, at the same time, advancing our own best interests. We have seen many instances of the advancement of clerks to higher positions. Most of the men and women who are now buyers were formerly clerks.

"Why were they advanced?

"Simply because they made use of every opportunity to enhance their own usefulness to their employers. Sooner or later these efforts were recognized and were followed by the advancements due them.

"The telephone is an opportunity.

"Good will, good temper, patience and ability may be expressed in the choice of words and the tone of voice. Carelessness over the telephone is just as evident as carelessness face to face. So let our words and expression reflect our desire to please.

"Patience is a wonderful virtue, understood, perhaps, much more by the people of the Orient than it is by the people of America, yet from the Orient we are learning patience, and it works wonders."

And, in this respect, what applies to the department store applies to the telephone business, in the operating room, the business office, the shop, everywhere, every hour in the working day.

Recognition of Worth

Every Saturday morning for years—since the day of George W. Childs, the man who made it famous, in fact—the *Philadelphia Public Ledger* has printed a leading editorial of the kind usually associated with "heavy" magazines. Always readable and worth while, the leader of Saturday morning, November 18, impresses us as especially broad and virile.

With just the right dash of that frequently maligned quality—uplift, "The Man Among Men" presents old facts in striking new garb. It should prove helpful to every workingman and woman who reads it. Quoting from it:

"The strong man is he who without losing nerve or temper faces the facts, fights down the lions in the way, and conquers himself first of all.

"We may have our dreams as much as we like, and believe in fairies as hard as we please, but we are not to play at being pixies and elves when all the work of this needy earth awaits our doing. Great commands are committed only to the hands of those who are able to hold them. The world very quickly finds and fixes a man's value. It gives him just what he can do, and pays him for that, at the current market price, and all his wheedling and blandishments cannot alter an economic condition.

"The man among men compels the recognition of his ascendancy. He

does not have to say much to do it. He merely is what he is, and one feels it."

A Handicap Overcome

There is one characteristic which is exhibited frequently by some and only occasionally by others, always to their detriment, and that is what is colloquially termed as "grouchiness." However great the provocation may seem it will be generally conceded that it is a poor policy to exhibit discontent to such a degree that it becomes a habit.

In some businesses the conditions are such that they seem to warrant momentary chafing perhaps, but not as one occasionally meets where there is a group of workers—a "Cave of Adullam."

We have heard of a novel method adopted by one querulous man who was seriously affected whenever something happened which disagreed with his plans or opinions. To Mr. B—— was assigned the duty of replying to the firm's correspondence. When on two occasions he had lost business as a result of having sent sarcastic replies, he decided upon this course. As soon as he received a letter which complained of quality or asked for less expensive goods than those commonly sold, he dictated the most saucy, biting reply that he could compose—or he wrote it out in "long hand." Then when his vocabulary was exhausted, he destroyed the letter and dictated or rewrote a most gentlemanly, tactful reply without the slightest intimation of the feelings which had been uppermost in his mind. Sometimes he telephoned a grumpy, ungentlemanly and peevish reply *without lifting the receiver* and then did it in an entirely different spirit while in actual conversation.

We do not advocate such wasting of time nor displays of temper, but they are better than to show others the rough coat. We should practice thinking—

"Now is the winter of our discontent
Made glorious summer by this sun of York,
And all the clouds that lour'd upon our house
In the deep bosom of the ocean buried."

Service vs. Stations

The difference between a *telephone* and *telephone service* was emphasized the other day in Ohio. A wealthy recluse had died and at the sale of his effects twenty-five sets of telephone apparatus were sold for very small sums. The man had no relatives nor business associates, but had evidently been so impressed with the value of the invention to the world that he had gratified a mania for buying odd instruments. None was in service.

Conservation and the Wire Service

(Continued from page 1)

"This is one end of our line of extravagance. The other end is indicated by such facts as follows:

Luxuries imported, 1910.....	\$250,000,000
Tourist expense in Europe, 1910	300,000,000
Running pleasure automobiles	200,000,000
Cost of new pleasure auto- mobiles	200,000,000
	<hr/>
	\$950,000,000

"The wasting of a can of oil by a railroad employee is part and parcel of the same national temperament as the use of an automobile for mere pleasure by a man who can't afford it. It is ingrained in us to be extravagant and not to be shocked at waste. Just as our fire losses are the greatest among civilized peoples because we are careless and for no other reason, so our easy habits of waste and extravagance keep the cost of living unnecessarily high. The extravagance of the rich begets it in the well-to-do and breeds carelessness in the poor.

"The fundamental fact that every waste and every sheer luxury is a tax—that is an economic truth hard to learn in a rich country. But that is the exact truth—it is a tax, a heavy tax."

Waste in the production and in the consumption of the product must be eliminated. Examples of waste in the production are given in the railroad bulletins quoted above. A similar table could be prepared in our business and, in addition, attention can be directed to thoughtless waste in little things, which, in the aggregate amount, when reduced to money, to many dollars, as, for instance:

The man who uses letter paper for scribbling purposes.

The man who neglects to turn off the light over his desk when he quits for the day.

The man who writes personal letters during business hours.

The man who encourages his friends to call him on the telephone during business hours.

The man who "soldiers."

One of the most difficult waste-making practices to hold in check in the management of a business like ours is inter-departmental correspondence.

As examples of the waste in consumption, I point to those individuals who, through carelessness or disregard for the general good, waste the water supply. There are so many of these that the managers of water supplying institutions, be they privately owned or municipal undertakings, are constantly putting out warnings and doing such other things as occur to them to stop the evil.

There is, as another example, the flat rate telephone subscriber who, regardless of all things except his own interest, uses and permits others to use his telephone line to an extent far beyond its normal capacity. I know of examples of this in which the actual cost of furnishing the service per year exceeds \$1,500.00, while the rate paid does not exceed \$125.00.

We, the telephone and telegraph companies, are public service corporations. Just what department stores, hotels, drug stores, livery stables, etc., are is not so clearly defined, but to my mind one of the great differences between the public service corporation and the other is

that the public service corporation having made possible the present state of commercial and social development, must go on with it; in fact, keep a little in advance of the general development.

The state recognizes that fact when it establishes commissions to criticize our service, to tell us what we must and what we must not charge our patrons, and to protect us.

A commission in considering rates will always protect the Company's earnings. It will say a rate is reasonable when it covers expenses, including depreciation, and insures a fair return to the investor. It is not reasonable, however, and will not be so considered when investigation shows that while the return is barely sufficient to cover expenses, including depreciation, interest charges and dividends, there is unnecessary extravagance in the construction, the maintenance and the operating.

The unnecessary extravagance, the waste, that is supposed to attend all big undertakings has brought into existence Efficiency Engineering, so-called, which, as already stated, is based on the principle of conservation. Efficiency Engineering, like conservation, is all right.

For my part, I have no quarrel with the man who thinks that the correction of the great American evil, wastefulness, should begin with the quasi-public service corporations. Start with the wire service companies, with which companies there have been enormous waste. We believe that in the rapid development of the service there has been no great waste in operating which Efficiency Engineering is to correct. But the great waste, the waste for which the states themselves are in part responsible, followed duplication of plant, the introduction of competition in the wire service. It is well enough to say that the service of the one company was so inadequate and the rates so high that for relief new companies were encouraged to start business. The evils which the people sought to correct were in some cases real, but the remedy, though it did not appear so at once, was worse than the disease.

To question the fact that regulation by commission implies monopoly is not permissible.

The Board of Public Utility Commissioners of New Jersey, in an opinion withholding its approval of an ordinance passed by the Township of Shrewsbury, running to the Atlantic Highlands Gas Company, used the following language:

"Experience has gone a long way towards demonstrating that services afforded by public utilities tend eventually to be rendered under conditions of monopoly. It is true that for a time a public utility may compete with another supplying the same body of consumers with the same service. But experience demonstrates that such competition is likely to be short-lived. The two competitors are influenced by the considerations of securing higher prices by the mutual cancellation of their competition, and not infrequently by the possibility of reducing costs by a union of parts of their productive apparatus. Where actual fusion of the two erstwhile competing concerns does not result, a division of territory or joint agreements as to rates, prices or service not uncommonly operate to leave consumers at the mercy of a virtual monopoly. The low prices prove but temporary, and the transient gain is succeeded by a long period of loss. That public opinion has come to recognize the almost inevitable outcome of such temporary competition between public utilities is evidenced by much recent legisla-

tion. The creation of various boards and commissions with supervisory powers over public utilities, and often with eventual powers of rate-fixing, demonstrates that the illusive doctrine of competition in this field is being superseded by an experimental régime of strictly regulated monopoly.

"Two other influential considerations operate in the same general direction. Where competing companies, with franchises, serving the same consumers, finally unite, the unnecessary duplication of plant and appliances entails a permanent burden upon the public. Even when prices, after due hearing, may be prescribed by public authority, some regard must be paid to the interests of bona fide investors. The prices set must have some reference to the capital legitimately sunk in the equipment of the formerly competing plants. It not infrequently results that the prices eventually authorized are higher than they would need to be if no more than the necessary amount had been originally invested in plant and appliances adequate for the supply of consumers. Thus the evils of an ill-judged competitive experiment in a field unsuited therefor perpetuate themselves and burden the consuming public.

"It is hardly necessary to add that the unnecessary installation of pipe, conduits, mains, wires, tracks, and the like by two competing public utilities in the same region augments unwarrantably the disturbance of traffic through the public thoroughfares, and creates gratuitous nuisance."

Governor McGovern, of Wisconsin, in a notable address before the Conference of Governors at Spring Lake, N. J., held in September of this year, said:

"The nature and character of the business of utilities is such that competition is inoperative in determining service or rates, and the only choice left to the public is between regulated and unregulated monopoly. It goes without saying that the right of the state to supervise monopolies is as ancient as it is obvious. * * * * *

"The mere fact of regulation of public utilities contains the implication that they are virtual monopolies; otherwise supervision of them might not be expedient or even justifiable. Unnecessary duplication of equipment, unnecessary augmentation of fixed charges, and cut-throat competition are prevented, and a more economic and satisfactory service is rendered.

"Thus commission control is protective as well as regulatory—protective of the utility, I mean. The requirement that every person desiring to start a new utility shall first obtain from the commission a certificate of public convenience and necessity further exemplifies this policy. In order that each existing company, so long as it properly serves the public, may be free from invasion of its field by rivals possibly more powerful than itself it is provided that every utility having an indeterminate permit shall have an exclusive monopoly of the business in which it is engaged, except in those rare cases where the commission, after hearing, may determine that public convenience and necessity require a second utility to divide the field or to supplement inadequate or defective service. 'Sandbagging' and 'paralleling' are thus very properly and effectively outlawed." * * * * *

The Governor in referring to rate-making said:

"In the case of electric lighting, for example, the *flat* rate per lamp rule which prevailed almost universally in Wisconsin before public regulation began was soon found to be very unjust and unsatisfactory. Under it those who used their lamps for a short time each day were required to pay as much as those who used them constantly. To say nothing of the manifest unfairness of this arrangement, waste of electricity was of course the natural result with consequent loss to both producer and consumer. The man who uses 10 kw ten hours a day should, of course, pay less than his neighbor who consumes 100 kw one hour a day, for the very plain reason that the latter requires ten times as great a proportion of the capacity of the plant. The proper adjustment of matters of this sort, though by no means simple, is nevertheless possible and highly desirable. It is of the very essence of scientific rate-making for without it justice between different classes of consumers is impossible of attainment."

While I am not discussing rate-making in this paper I cannot help quoting the Governor of Wisconsin in his remarks respecting rates charged for electric lighting in his state as it bears so directly upon telephone rate-making. That part of the Governor's address which is of interest to-night deals with commission control. He tells the Governors of other states that commission control not only implies monopoly but is protective as well as regulatory—protective of the utility.

That, I believe, is the way the people expect commission control to work out, and, therefore, the utilities must depend upon the commission for that protection to which they are entitled. Let us hope that this is so and that with commission control we can devote our whole time to developing and improving the service—to developing the science of efficient and economical management. Let us have relief from competition, which, in the telephone business, is always of the "cut-throat" variety, and the public will be better served, the Companies will prosper as they deserve to prosper, and the commissions will be regarded as a valuable piece of state machinery.

No right-thinking man questions the soundness of the conservation policy, but some of us wonder why it is not accepted in its broadest sense.

There is a time-honored legend concerning the man who makes two blades of grass grow where but one grew before. That legend would be just as effective if it had been applied to the man who might find a way to extract as much sustenance from one blade of grass as had previously been extracted from two.

Think of that for a moment, and then ask yourself about the man who makes one telephone or telegraph pole serve the purposes of two. Is that conservation? Is it efficiency engineering? Does it prevent waste? Is it in line with the present-day movement toward the conservation of natural resources? The conservation policy is thrust upon the utility companies.

There are those who for one reason or another raise the cry of monopoly and coming extortion when this elimination of useless poles is put under way, but that must and will fall to the ground when it is clearly understood that the state has anticipated such a state of affairs and has, through its commissions, provided against it.

Now, I have used the pole in illustration, not because it offers the greatest economies in construction and operating, but because it is in the

highway where all can see it. All over the country we see pole lines on both sides of the roads, and for miles upon miles three or four lines of poles paralleling one another are equipped with crossarms and carrying combined not enough wires to properly load one and that without employing cable.

There are in the joint occupancy of office space, the joint use of wires in conduits and the joint employment of labor economies to be effected that will eventually save to the people millions of dollars. I say *save to the people*, because the state has given the people that protection against exorbitant charges that attaches to regulation by commission.

These things we are discussing are relatively new—in fact, the word conservation is but lightly treated in the dictionaries—the Standard defining it:

- 1st. The act of keeping or protecting from loss or injury; as the conservation of health, or of social order.
- 2d. Specifically the preservation of fisheries, rivers, harbors and the like.

Efficiency Engineering is a new profession and, I will say in passing, that like tree surgery, another new profession, it is apt to be crowded with men who know nothing of it, but who, with an eye to the main chance, get out of it, as out of other new things in which great interest is aroused, all they can before it finds its settled place in the world's work.

Regulation by commission has been developing as a state policy since the creation of the Interstate Commerce Commission in 1889. It is true that state regulation of railroads was attempted prior to the creation of the Interstate Commission. In 1874 the legislature of the state of Iowa enacted a maximum railroad rate law and though the courts, even to the Federal Supreme Court, upheld the law as constitutional, it was repealed in 1878 as it was generally regarded as too drastic. In the same year a railroad commission with powers that were mainly advisory was created. Curiously enough, Wisconsin, now pointed to as the leader of the states in the development of the regulation by commission idea, was early in the field with regulatory legislation. In 1874 the legislature of that state enacted the so-called Porter law, under which railroad rates were fixed and an administrative commission composed of three members was established. The arrangement was so unsatisfactory, both to the roads and to shippers that the law was repealed in 1876.

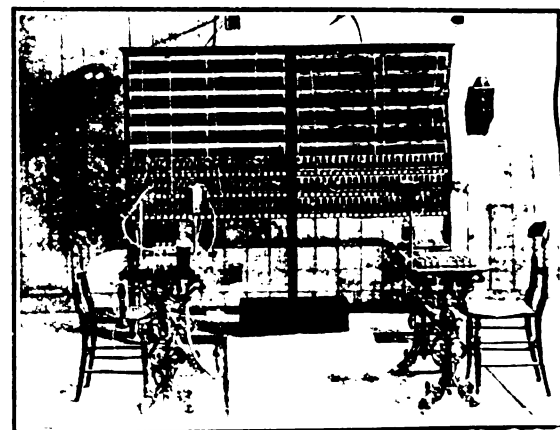
Railroad commissions existed in Massachusetts and other states prior to the creation of the Interstate Commission, but the real working out of the commission idea as applied to all utilities is just beginning.

We find ourselves at this time under the supervision of the Interstate Commerce Commission, under State Commissions in New York, New Jersey, Pennsylvania, Ohio and Maryland, and under a City Commission recently created by the State Legislature at Wilmington, Delaware. Of course, there are many other State Commissions, but I am discussing the situation only in the territories of the New York Company and the Bell of Pennsylvania and Associated Companies.

I have had experience with these commissions. I have found on them intelligent and fair-minded men. I have found them earnestly at work on the tremendous problems that confront them, and I think that considering the fact that the commissions have been in existence but a short time a great deal has been accomplished. We

have always welcomed fair criticism of the service we render.

We want the people to know more about our problems, our methods and our purposes. We want them to be entirely satisfied with our service and with our rates. These things can only be brought about by a proper understanding of the evils of competition—of the great changes in the art since the telephone was invented and brought into commercial use—of the policy of the Company in extending its lines into non-productive territory in order that a full development might be secured—the necessity of exchange districts—and the difficulty in fixing boundary lines, and the many other things that are being and will be reviewed by the commissions. The utilities are entitled to nothing more, and will expect nothing more at the hands of the commissions, than careful and intelligent investigation of the matters brought before them, and justice in the orders issued.



The First Telephone Switchboard in Service in London, England, about 1879.

[From The National Telephone Journal]

A Heavy Order Quickly Filled

In making 15,000 feet of 100-pair lead-covered cable in two days the Western Electric Company recently set a new record. The hurricane which swept over Charleston, South Carolina, last month left that city isolated from the rest of the world, as far as communication was concerned. The Southern Bell Telephone Company made such heroic efforts to put its plant in operation again that service was resumed in a remarkably short time. More lead-covered cable was needed, however, and the Telephone Company called up the Atlanta office of the Western Electric Company and placed an emergency order for 15,000 feet, or nearly three miles, of 100-pair cable. The Atlanta house immediately wired the company's cable plant at Hawthorne. Two days later this 15,000 feet of cable was on its way. In two days nearly three miles of 100-pair cable had been manufactured, placed on huge reels and shipped.

Some idea of the magnitude of this achievement may be had from the fact that to make this cable nearly 12,000 pounds of copper conductor, over 40,000 pounds of lead and over 1,300 pounds of tin were used.

It is interesting to know that the Western Electric Company, the largest manufacturer of lead-covered telephone cable in the world, uses yearly over 100,000,000 pounds of lead, 3,000,000 pounds of tin, 20,000,000 pounds of copper conductor and 4,000,000 pounds of insulating paper in the manufacture of telephone cable.



Motor Vehicles.

An Example of Their Advantages in Emergencies.

On a recent Sunday the strand supporting two of the Sellersville, Bucks County, Pa., cables was burned in two, and, in addition, one of the cables was burned through. This allowed both cables to fall. It was of vital importance to deliver the gangs and material on the spot in the shortest time and at the least expense. The following is the result of the use of a motor truck in delivering material. The transportation of the gangs will not be dwelt upon.

Our 1½-ton Mack truck left Seventeenth and Appletree Streets, Philadelphia, at 5 P. M., after loading tools and small material, trailing the cable wheels. Upon arriving at the Western Electric Company's storehouse at Eleventh and York Streets, a reel of 1500 feet of 60-pair 22 gauge cable was rolled from the cable yard to opposite the power house and loaded on the cable wheels. A reel of 2500 feet of 30-pair 22 gauge cable was jacked up and 800 feet of this reel placed on an empty reel. This reel was loaded on the Mack truck. The truck with its load left the Western Electric Company's storehouse at 7 P. M. and reached Sellersville at 1 A. M. the next day. At 6 A. M. the same day the truck was back in Philadelphia.

The total weight hauled was 5455 lbs. This included tools, cable and reels. If this had been shipped by express the cost would have been \$27.28. If shipped by freight the cost, including hauling at each end, would have been \$17.39. The Mack truck has cost about \$7.00 per day for the time it has been in service. Assuming \$7.00 as the cost per day, this amount would represent the cost of delivering the above material and tools in Sellersville.

The following table gives the costs itemized and the saving effected by the use of the Mack truck.

By express, 5455 lbs., @ 50c. per hundred pounds	\$27.28
By freight, 5455 lbs., @ 13c. per hundred pounds	\$7.09
Hauling in Philadelphia.....	5.30
Hauling in Sellersville.....	5.00

Total cost by freight.....	17.39
By motor truck.....	7.00
Saving of motor truck over express, \$20.28, or 74.3 per cent.	
Saving of motor truck over freight, \$10.39, or 59.7 per cent.	

It will be noted that it was only by the use of the trailer that we were enabled to haul the above load with a 1½-ton truck. This practice is rare in this country, but is quite common abroad. The Saurer and Alco companies state that it is usual in Europe to haul a weight as

great as 13 tons with a 5-ton truck. The tonnage above the capacity of the truck is placed on trailers, which may number anywhere up to six or eight, hauled by the fully loaded truck. The Mack Motor Truck Company have no figures on the matter and therefore cannot give the hauling capacity of this truck under such conditions.

Cacti for Telephone Poles

It is stated that cacti are to be used for telephone poles in the great southwest. The first experiment, says the *Arizona Republican*, is to be made near Tucson, a mining town in Pima County, Arizona, where the government is to build a telephone system for the Forestry Service of the Coronado Forest Reserve. Cacti as nearly in alignment as possible will be utilized in the canons where the use of poles would be impracticable. They are expected to be practicable and long-lived.



Exterior of First Joint Telephone-Telegraph Office in this Company's Territory, Bridgeton, N. J.

A firm in Wilmington, which in its particular line is the largest in the world, received a letter making inquiry as to the cost of a bill of goods. The senior member said, "Send price list by mail;" the junior member said, "Telephone." He "used the Bell," and within two hours had an order amounting to \$800.

Bridgeton, New Jersey

(Continued from page 1)

We took a short cut through the crowded business section of the place, and in three or four minutes came to the entrance of Bridgeton's exceptionally fine park—Tumbling Dam Park. As we strode through its beautiful paths, crossed the charming bridges hidden away along the curves of "The Race," and gradually approached Sunset Lake, its chief charm, my enthusiasm rose by bounds.

"Where did you get all this park land!" I exclaimed. "I never heard of such a big and beautiful park in such a small place."

My guide laughed: "Bridgeton is lucky to have such a place," he agreed. "Some years ago these 680 acres were owned by a private corporation. It went to the wall one day and the land was put up at public sale. A Bridgeton citizen was keen enough about its beauties to attend the sale. Most everyone else thought it would be useless—that the tract would bring an enormous amount. Well, it didn't. The citizen I mention secured the whole business at a ridiculously low figure—and he proved himself a real citizen by promptly turning it over to the borough at cost. Since then, it has been our most beautiful feature.

It's really a beauty, that park. In the summer it is ideal for canoeing, boating and bathing; a Mecca for picnickers from miles around. In the winter its sheltered streams and its broad lake are crowded with skaters.

At that, however, my observations convince me of one thing: Bridgeton people think they appreciate their park. Perhaps they do—to a certain extent—but for my part, I'm sure they don't appreciate it for more than 50 per cent. of its real worth. It is not a rare failing—this lack of local appreciation. It's noticeable in many instances. But the fact remains that Bridgeton has a 700-acre garden spot of which the largest cities on this continent might well be jealous."

As we walked we talked—gradually getting around to the commercial side of affairs. The community, I learned, wasn't always as prosperous as it now is. For years the farm owners and their tenants were perfectly satisfied to do things the old-fashioned way, just as father did, and grandfather before him, and so on as far back as the time of the old Dutch settlers. As an inevitable result half-efficiency was about the best they could do with their fertile fields. Then, not more than five or six years



Bridgeton, New Jersey

(Continued)

ago, a few of them caught the scientific farming fever. It dawned on them that their soil was especially adapted to the cultivation of certain kinds of vegetables—and they really got busy. As she always does, Nature repaid their every effort. It wasn't long before these same farms, heretofore ordinary, poorly cultivated fields and pastures, began to "look up." Their products per acre grew amazingly. To-day, through the agency of modern machinery and appliances, and by the use of the latest principles for soil cultivation, the farms of Cumberland County are among the most noted in the deservedly famous agricultural regions of New Jersey.

Half a decade ago many a farmer or tenant in this community would come into town with discouragement written large on his haggard face. Local bankers were besieged by men trying to negotiate additional loans on their already heavily encumbered properties. A man who could eke out a bare living was fortunate.

All that is changed now. Farm owners ride into Bridgeton in their own automobiles, or, as the preference sometimes goes, behind spirited horses. Back on the farm they have a collection of farming implements and equipment that astonishes the ordinary layman. Their houses are well lighted, fitted with conveniences such as we think belong exclusively to city life—and best of all, their establishments are well telephoned. Even the farm tenant, nowadays, is a mighty independent person. He knows he's a source of considerable profit to his employer. His contract reads accordingly; and the year round he's a contented, prosperous cultivator of the soil—with a fine prospect of becoming an owner in a few years.

Several specific instances of the awakening of South Jersey farmers came to my attention. There's a man by the name of Seabrook, for instance, who lives in Deerfield Township, Cumberland County. Fifteen years ago Mr. Seabrook bought a farm known as the David Finley place. It was a typical, sleepy, immature Jersey farm. To-day it is a transformed place. There is nothing dormant about it; in fact, it is one of the prize farms of the State. Skill and intelligent labor have wrought a remarkable change. A system of overhead irrigation has been the keynote of its developer's success. This irrigation system—known as the Skinner system—is interesting. Galvanized iron pipes run across the fields 50 feet apart at a height of about 8 feet. Water flows to these pipes from a five-inch underground main. Every 50 feet along these "nozzle lines" an operator can turn the water on and off and throw a spray of 25 feet to either or both sides. Thus it is possible to cover the entire acreage with gentle showers, no matter how long or hard the drought. An eight-horse power engine, with its pump, provides 300 gallons of water per minute for the operation of this system.

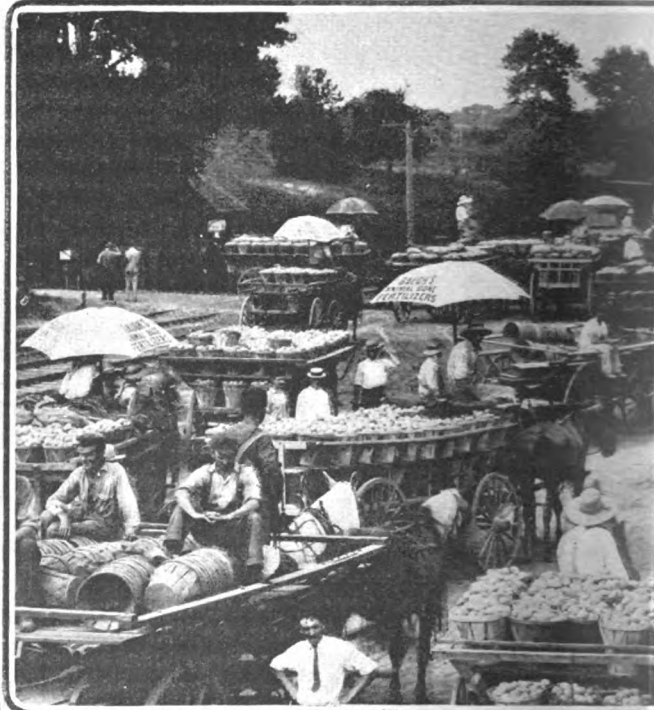
Further, at the Seabrook residence is an artesian well that furnishes gallons of clear, crisp drinking water at any moment. The house is provided with every convenience. Among them the telephone is prominent. By its use the owners are in daily touch not only with their market, but also have an invaluable personal comfort in their home. This particular farm is unsurpassed in its specialties—rhubarb and po-

tatoes. It also produces radishes, beets, onions, carrots, lettuce, spinach and asparagus.

As an instance of the previously mentioned scientific methods on the Seabrook Farm, this year they have obtained four alternate crops from the same land. From four acres the proceeds have been a thousand dollars per acre.

One of the busiest points in Bridgeton is Shiloh Crossing. A good authority states that it is the best market place in the state for Cumberland County's most profitable product, potatoes. It has ample railroad facilities to handle a large number of cars. Buyers from all the large cities in the East and from as far west as Chicago gather at this point to make their purchases. They represent the largest commission houses in the country, and, as may be imagined, they are liberal users of the telephone, keeping in daily touch with their home markets. Thus they can gauge their actions, for even a small change in the market price of a vegetable might turn the profit on a number of carloads of that article into an overwhelming

Views in and near Bridgeton County, N. J.



SELLING AND SHIPPING



EARLY FALL
NEAR
BRIDGETON,
N. J.



STREET
TELEPHONE



MODERN POTATO PLANTER.



FIFTY ACRES OF POTATOES IN FULL BLOOM

County Seat of Cumberland New Jersey



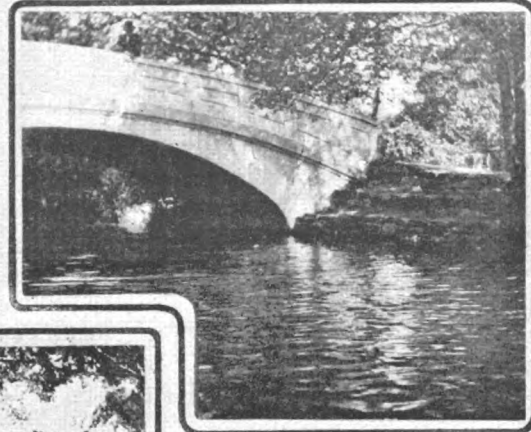
POTATOES-BRIDGETON, N.J.



OBTAINING
PRICES.



VIEWS IN
BRIDGETON'S
NATURAL
PARK.



ASSOM-EACH ROW ONE-HALF MILE LONG.



DIGGING MACHINE.

loss. It is estimated that these buyers paid out to Bridgeton farmers at Shiloh Crossing more than \$150,000 during the last season.

It is interesting to see how the farmers have developed the telephone instinct. Every one of them calls "The Crossing" before he leaves his farm with a load of vegetables. He inquires the prevailing prices—and thus guards himself against an unwise transaction. About 90 per cent. of the farmers who bring their potato crops to Shiloh Crossing have Bell telephones. A typical scene at this busy point is reproduced.

This year has been an especially profitable one for potato raisers. The season has been short, but many a small fortune has been made notwithstanding. The price seldom has been so high; the buyers never so many, and the telephone never has been used as it was this year in selling and buying this splendid potato crop. The prevailing price per barrel was \$4.12. Total shipments of potatoes from the different shipping points in this vicinity have been as follows:

Elmer	515	Cars
Woodstown	629	"
Salem	625	"
Mullica Hill	394	"
Palatine	265	"
Davetown	250	"
Aura	104	"
Greenwich	104	"
Richwood	99	"
Bridgeton	562	"
Williamstown	51	"
Husted Station	108	"
Quinton	61	"
Cedarville	26	"
Mickleton	30	"
Monroeville	69	"
Alloway	53	"
Fairton	25	"
Clayton	40	"
Woodruff	35	"
Bassett	60	"
Yorktown	53	"
Muselan	134	"

In the afternoon we drove out through several typical Bridgeton farms. On the way I learned more about Bridgeton's rural telephone development—a feature that was beginning to interest me mightily. Five years ago there were practically no rural telephones in the community. There were only 600 in the town itself. But about that time our local representatives saw their opportunity. They launched an aggressive rural campaign. In the language of the farmer, it was hard hoeing for a while. The farmers were just beginning to spend money on up-to-date appliances, but the telephone looked suspiciously like an unnecessary luxury. Finally, our people managed to get a few applications for service. They went right out in the country and showed these first few subscribers just how valuable the telephone can be made. They gave new subscribers all possible publicity; and then they began to get returns. The results obtained by the initial takers of service proved to be the best possible argument in going after additional applicants. How successful this campaign has been is evidenced in the figures of today. At present, instead of a blank in the rural subscriber column, Bridgeton has 12 rural companies with 113 stations, and a total of 500 rural stations working in connection with the Bridgeton switchboard.

During this big five-year season the telephonic growth of the town was by no means neglected. As the number of farm telephones grew, it followed that the awakening business men of Bridgeton saw the trend of affairs. They saw that in order to secure the trade of these 100 per cent.-efficiency farmers it was necessary for them to have the same means of communication that the ruralites had begun to use. Without it, the "other fellow" would get their trade. When this idea took root, the persistent canvassing of this Company's salesmen produced a new ratio of success. At present there are almost a thousand stations in Bridgeton proper. The total number of stations, rural and otherwise, connected with the Bridgeton switchboard is now nearly 1,500—and the total is still growing.

It is impossible to go further into the details of that interesting afternoon among Cumberland County farmers. Suffice it to say that they are a remarkably efficient set of agriculturalists. Everywhere we went we saw broad, fertile fields, well-kept fences, houses and out-buildings, up-to-date machinery and appliances; and lastly, inside of their homes we practically always found a cozy room that held nothing but a big business-like desk or table, a few necessary chairs and that most conspicuous and significant adjunct of all, a Bell telephone.

Baltimore Division

J. R. BROHAWN, Division Correspondent

Annapolis District. On Sunday, November 12, at 6.45 P. M., the operator at Annapolis reported to the Plant Wire Chief that all of the Baltimore trunks were out of order. On a test they all showed "crossed and open." As the wind had been very high, it looked as though there was a tree down on the line. The Chase car was called into use and the break was located about 10.30 P. M., at Dividing Creek, a distance of 13 miles from the Central office. A tree had fallen on the line, breaking four sections. The tree was removed and break repaired at 2.30 A. M. Fifteen trunks and two farmer lines were out of commission temporarily. GARDNER.

Cumberland District. The following letter was received from The Daily News Company as a result of efficient service during the fall election: "We desire to thank you for the prompt service rendered us in getting the returns on election night, and through you to thank the operators of the exchange who assisted so much in getting us this good service. The service on election night was the best we have ever had." DODGE.

Frederick District. Three new plan "A" rural line contracts have been closed by the Local Manager at Frederick, all of which will connect with the Emmitsburg exchange. Considerable opposition was encountered during the canvass, as an opposition company had been working hard during the last six months to develop this territory. Two of the companies are:

The Emmitsburg Pioneer Rural Telephone Company, with two lines, one to run north toward Fairfield, Pa., and the other west to Zoura, Pa.

The Hampton Valley Rural Telephone Company will run west to a point in the Blue Ridge mountains.

Prior to February, 1911, there were no rural lines in Frederick County; since that time five lines have been built. STAKE.

Havre de Grace District. Contracts have been closed for a farm line to connect eight stations on Still Pond Neck, in the extreme northwest portion of Kent County. This is a fertile fruit-growing section and the installation of Bell telephones will be a big help in saving and marketing the large annual crops of pears and apples.

Arrangements have been completed for giving continuous service from the Perryville central office. This change will put all the Diamond State central offices in Cecil County on a "continuous service" basis.

Negotiations are under way to connect several "ducking shores" on Poverty Island, Bush River Neck, Harford County, which heretofore have been three miles by boat from the nearest Bell station.

On October 31 the five cent toll heretofore charged for calls from subscribers' stations between the Havre de Grace and Churchville central offices was abolished. Already a number of new applications for service have been signed.

An Aberdeen subscriber having some very important calls to make during the evening of Friday, November 3, was greatly disappointed on finding his telephone in trouble. He communicated with the chief operator from a nearby station, explained the situation, and the operator decided to make a personal inspection of the instrument. On doing so she found the line broken at the binding posts. The necessary repairs were made in a twinkling and the business of the evening proceeded without further diffi-

culty. The subscriber is now loud in his praise of the way our operator jumped into the breach in her effort to afford relief, even though the matter requiring attention was outside of her official duties. Permanent repairs were made by a troubleman the following morning.

The Havre de Grace Commercial, Plant and Traffic departments have moved to their new headquarters in the Post Office Building. The cut-over was made on October 28 without any inconvenience to the subscribers. In commenting favorably on the work one of the local papers calls attention to the fact that there will be new names added and that the directory should be consulted for numbers instead of calling by name. GERBER.

Towson District. A private branch exchange consisting of two trunks and 17 stations has just been completed for the Maryland School for the Blind, at Hamilton, Md.

The school grounds have an area of 92 acres. A standard type No. 101 board is located in Newcomer Hall. The class rooms, assembly halls and office are located here. They have four large brick dormitory cottages for white pupils, three for colored, a stone cottage for the superintendent and a concrete power house and laundry.

Approximately four thousand feet of underground conduit and cable are on the premises, and fifteen hundred feet of inside wiring in the building ducts.

A blind operator is in charge of the board. The glass framework over the line signals has been removed until the operator becomes familiar with the signals, after which connections will be established by the operator with no other guidance than the sound of aluminum shutters as calls come in over the line signals. ELLIS.

The Bell Saved Another Life

The subscriber to Tuxedo 430-K, a Baltimore suburban number, is a woman toll-gate keeper at Cold Spring Lane and Charles Street. One day recently she stood watching a young man getting rock from a bank across the road. Her attention was diverted for a moment, and when she again looked she discovered that he had disappeared. The surroundings are such that it would have been impossible for him to leave the place without attracting her attention. She ran over and found that a large amount of earth and rock had caved in and had buried him. Unable to release him, she telephoned to a neighboring house and summoned aid. The unfortunate man was dug out from under the boulder and hurriedly taken to a hospital. It required six weeks for him to recover, but the prompt use of the telephone saved his life.

Harrisburg Division

J. C. WEIRICK, Division Correspondent

Allentown District. Within two hours after the plant of the Lehigh Valley Structural Steel Company at Allentown had been destroyed by fire in the early morning of November 10, the Plant Department re-installed a telephone, although the wires had been rendered useless for a considerable distance from the works. Fire again broke out in the ruins the same evening, but a message sent from the new installation by the watchman soon had the fire department at the scene and the blaze was extinguished.

An Allentown salesman was told that a prospect did not want party service, but a direct line.

After the rate was quoted the prospect remarked that it was higher than he could afford.

His objection to party service was, as he said, that it would necessitate extra keys to his store, so that the other parties on this line could use the telephone after he had closed his place of business. After a lengthy explanation of what party service means the salesman secured his application.

On November 15 a man entered a barber shop, and while the proprietor stepped in an adjoining room the stranger opened a cabinet and took a supply of razors and scissors. He then hurried to the railroad, directly across the street, and boarded a freight train, which happened to be passing at the time. The proprietor, discovering his loss, telephoned the station agent and notified him of the theft. An officer put on guard at the next station noticed the suspicious character as the train pulled in and, finding the goods in his possession, placed him under arrest.

Harrisburg District. Two years ago an opposition movement was begun at Blue Ridge Summit to establish an exchange and connect Waynesboro, seven miles away, by five metallic circuits. The line was built and most of the telephones were installed and connected with the United exchange at Waynesboro. We have about 120 subscribers supplied from Blue Ridge Summit and charge a toll of ten cents to Waynesboro. The opposition movement was originated on a basis of free service to Waynesboro. After being operated one year the line went into the hands of receivers and was recently sold and reorganized as the Blue Ridge Mountain Telephone Company. The reorganization proved a failure, and to-day not a single telephone of this company is working at Blue Ridge Summit. The pole lines are being utilized for an electric light line.

Two private branch exchanges signed in Harrisburg on the same day are Henry Gilbert & Son, No. 2, 6 stations, and Merchants' National Bank, No. 2, 8 stations. They were obtained by Salesmen Smith and Beam.

October rural lines are the Cripple Creek and Guilford Springs of 4 stations each, connecting at Chambersburg, and the Pleasant Grove, serving 7 stations from Mechanicsburg. Eight supplemental stations will also be connected.

Scranton District. In a recent selling effort among 100 subscribers of the Scranton exchange 93 were re-signed to standard rates, necessitating only 7 stations to be disconnected. This work was done by two of our salesmen within two weeks.

York District. Owing to the rapidly growing business in Elizabethtown the Plant Department is placing an additional section of switchboard equipped for 100 additional lines, and is arranging to place about 2,000 feet of 50-pair aerial cable. Arrangements are also being made to install about 2,500 feet of 50-pair aerial cable at Mt. Joy. Both of these exchanges have a large rural development.

The East Warwick Rural Line, receiving service from Lititz has obtained a number of additional subscribers and has applied for an additional four-mile circuit.

Stationery Notes

The standard A. T. & T. Company seal is to be used as a water-mark in the No. 2 Bell bond paper.

Monarch typewriters have been made standard for 1912.

Orders for binders should give the manufacturer's name and code number.

Pittsburgh Division**L. W. GRISWOLD, Division Correspondent**

Pittsburgh District. There is a certain Bell man in Pittsburgh who, after reading everything of the slightest interest to him in the newspapers, turns wearily to the social columns. When he had reached this point in a morning paper not long ago, he read this: "Miss A— will be an honor guest at a small telephone tea to be given tomorrow afternoon by her aunt, Mrs. J— M— B—." This excited the telephone man's interest, so he scurried around by telephone until he found out the why and wherefore of a telephone tea. He learned that it is one of the simplest things in the world.

"It's an informal affair to which the guests are invited by telephone. They're quite popular around Pittsburgh," said the society matron, who cleared up the situation.

Some time ago the Traffic Department received a request that Drop No. 13 be assigned to a business subscriber in a certain exchange.

"I have room No. 1313 and I want telephone No. 13," said the business man.

There was little trouble in granting the request because subscribers usually fight shy of the number.

"Perhaps there is something to that 'unlucky 13' racket," commented a Traffic man the other day.

"I looked up that particular subscriber," he continued, "and found his business went to smash a few months after he took room 1313."

Work has been started on the new retiring room, kitchen and operating room to be built for the Hiland exchange operators.

Meter registers, the first to be placed in the Pittsburgh division, are now in operation at the Court exchange.

G. S. Livingstone, a downtown salesman, has invented a toy aeroplane. The apparatus, which is thought so well of that a company has been formed to market it, was exhibited at the recent exposition. The contrivance is built of aluminum and will ascend gracefully and travel several hundred yards before descending. One particular feature of the toy is that it will always alight right side up and so gently that damage to itself is impossible.

One of our subscribers who confesses that frequently while homeward bound he drops into a certain cafe to take a "nip," sent the following letter in response to an acknowledgement slip:

"A man has a home. Incidentally he has a wife, also a telephone. This man makes a practice of calling the said wife by telephone when about to leave the city for his home. The presumption is that he calls from the office, or at least it would contribute materially towards felicity if there were nothing to interfere with this perfectly innocent presumption on the part of the better half. Sometimes it would be most convenient for the man to make such a call from a pay station located (well, not in a church) but for some reason your operators always make it apparent that calls originate at a pay station when such is the case, thus rendering it highly impractical (you may or may not understand all that these two words are intended to convey) for your subscriber to avail himself of the pay station. With the alleged narrow viewpoint of a sinner I believe there are many others like myself; and the point is—why cannot the connection from a pay station be made as from private phones?"

Our practice was explained to this subscriber. "Well I guess I'll change my own routine a little," he replied.

Butler District. Many reports complimenting the work of the Port Allegany, Pa., operators during the Austin disaster have been received. After the high waters had partly receded it was found that the only outlet for telephone traffic from Austin was by means of a privately owned line connected through the Keating Summit switching station to the Port Allegany Central office. The owners of this line, The Emporium Lumber Company, gave the Port Allegany office the use of it, and it was through this source that the extent of the disaster became known, as communication with Coudersport, the only regular outlet for Austin, was not established until Sunday noon following the disaster. The Port Allegany-Keating Summit line carried all messages of the extent of the disaster and plans for relief for the first twenty-four hours.

How well the traffic was handled by the Port Allegany operators, all of whom remained at their places of duty through the night, is attested to by the numerous reports of prompt telephone connection with Austin which have been received from all over the country. Many citizens of nearby towns have expressed in highest terms of approval their praise of the Port Allegany employees for their manner of handling the single line of communication to Austin. Several newspapers have written their appreciation. Among them is the following letter from the editor of the *Cleveland Press*:

Chief Operator, Bell Telephone Company, Pt. Allegheny, Pa.:

Enclosed find our check for \$10.00 for your kind help during the Austin flood. We wish to thank you for the prompt service.

Very truly yours,

THE PRESS.

Contracts have been closed with the following: The Peoples Telephone Company, Pennsville, O. Connecting company—6 exchanges, 1,488 subscribers.

Dillslow Rural Telephone Company, Morgantown, W. Va. Plan "A" company, 10 subscribers.

Sewickley Rural Telephone Company, West Newton, Pa. Plan "A" company, 17 subscribers.

The connection with the Peoples' Company, of Pennsville, has brought into the Bell system all of Morgan County, Ohio, not previously covered. The entire county is now covered by connecting companies serving 2,923 subscribers through 11 exchanges. This is an 18 per cent. development.

Erie District. On Friday evening, says the *Bradford Star*, a Bell company lineman walking on Chautauqua Place kicked a wallet which he opened and discovered contained over \$300 in cash. In a short time an anxious-looking and aged man appeared, eagerly scanning the walk. The lineman asked him if he had lost anything, and receiving an affirmative reply passed over the purse. The owner rewarded him with a twenty-five cent piece.

ANTHONY.

New Castle District. A plan "A" contract has been made with the Sandy Road Telephone Company, Grove City, Pa. It will start with six subscribers.

Recent elections at New Castle returned a Socialistic Mayor for the city. Telephone service was furnished at the Socialist headquarters, and, to show their appreciation of the service furnished, the party leaders presented our operators with a large box of candy and a basket of fruit. This note was enclosed with the gifts: "We thank the operators but not the corporation."

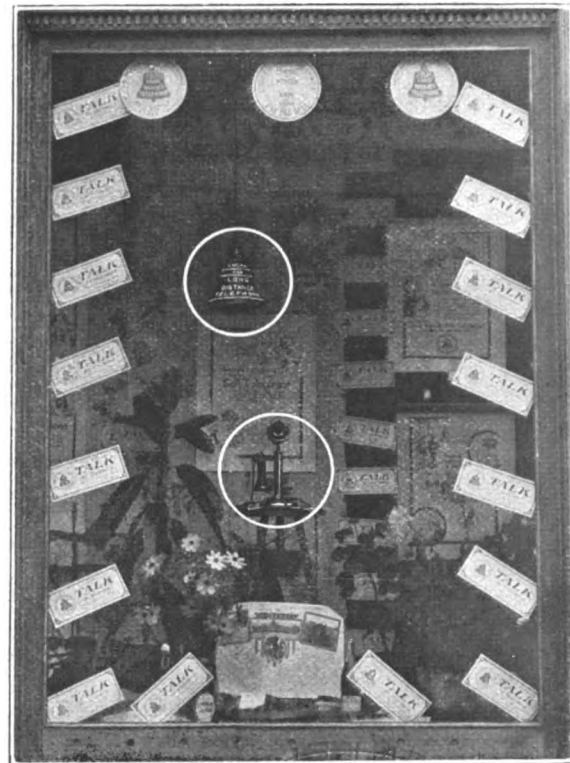
The Western Electric Company has started a large force of men on the new exchange switchboard in the Crawford County Trust Company building, Meadville Pa.

HARPER.

Uniontown District. The first joint telephone and telegraph office in the Uniontown District was established at Monessen, Pa., December 1.

The plant of the American Union Telephone Company located in Fayette County is to be sold December 2 at sheriff's sale for debts amounting to \$40,000. This comprises the plant installed about ten years ago at a cost of approximately \$325,000 by a local opposition company.

CAHOON.



Grocer's Window Display, Indiana, Pa.
Copy of Sept. 1 *Telephone News* in Foreground

The Bell Telephone Duck Pin League of Greater Pittsburgh

Interest continues at fever heat among the various teams. Eight of the 12 teams are evenly matched and each week finds a change in the team standing. High scores are the rule and all of last year's records have been exceeded. The A. T. & T. Company leads slightly, but is closely pressed by the others.

On November 16 the meeting was honored with the presence of several of the Company officials. Mr. E. C. Bates worked hard for his Commercial team, but in vain, as his men dropped three games. So far Mr. Moore's "Collection" team is a slight favorite over "Commercial." The rivalry between these teams is intense. Practically the same condition exists between the "Plant Accounting" and "Plant" teams. Captain Stewart is going just a little faster than Captain Francis at the present time. Standing of teams, Nov. 16:

TEAM.	WON.	LOST.	AVER.
A. T. & T.....	12	3	.800
Bookkeeping	11	4	.733
Plant	11	4	.733
Auditing	11	4	.733
Accounting	10	5	.667
Grant	9	6	.600
Collection	8	7	.533
W. E. Co.....	8	7	.533
Commercial	4	11	.267
Salesmen	2	13	.133
Hill	2	13	.133
Maintenance	2	13	.133

Keyless Ringing

The New Ringing Method to be Inaugurated in the St. Paul Exchange, Baltimore

By R. E. L. GEORGE, Traffic Supervisor

As the name implies, this ringing is done without the aid of keys or buttons, and is a strictly automatic operation. The St. Paul "B" board is to be equipped with this type.

At the present time we have in Baltimore two types of "B" board ringing—"electrically locking ringing keys," and "manual ringing keys."

It might be well to first explain the function of the "B" board:

"B" boards become necessary whenever the number of telephones in any exchange district exceeds the capacity of one switchboard, that is, when a district becomes a "Multi-Office District," and are used to establish connections switched from one exchange to another. They consist of a certain number of operators' position, each of which is equipped with a number of switching trunks ending in cords and plugs, supervisory lamps, a multiple of all lines within easy reach, and a method for ringing.

I will go through the operation of a trunked call for you:

1st:—The subscriber; for example—Mt. Vernon No. 1 wants to call St. Paul No. 2. He removes his receiver, thereby lighting a lamp before the Mt. Vernon "A" operator. She inserts the rear plug of a pair, thus extinguishing the line lamp, throws a listening key, and answers, "Number, please." Subscriber says, "St. Paul 2." Operator throws listening key to normal position, selects the "Call Circuit" button on her left marked "S. P.," cuts in by depressing it (which operation puts her directly on the head telephone of the "S. P." "B" operator) and says "2." The St. Paul "B" operator glances at the row of plugs before her, which are lines or trunks from Mt. Vernon, selects one which is idle, we will say "8," and calls back "8," at the same time inserting it into multiple jack "2." As soon as the Mt. Vernon operator hears "8," she releases her call circuit button and inserts the front plug of the pair with which she answered Mt. Vernon No. 1 into No. 8 trunk to St. Paul. Associated with No. 8 trunk at the "B" board is a lamp by which the operator is able to tell the status of the connection. Should she find the lamp still burning after connecting the trunk to the multiple jack, she would know that the "A" operator had not yet connected the calling subscriber with the trunk—the lamp goes out when the trunk is taken up by the "A" operator. When the conversation is over and the receivers are hung up the signals are both given to the Mt. Vernon "A" operator, and when she takes down her cords the lamp before the "B" operator burns and she in turn disconnects.

The ringing method at present is as follows: As soon as the "B" operator has inserted her trunk No. 8 into multiple jack No. 2, she "sets" the ringing key associated with No. 8 trunk. When she has pulled this key towards her sufficiently it becomes locked by being held in position by a magnet.

The ringing current, however, is not applied until the Mt. Vernon "A" operator has picked up the trunk assigned. You are all familiar with what happens then, the bell at St. Paul No. 2 rings for a short interval (three seconds), then stops for three seconds, and so on until the receiver is removed, which releases the magnet and unlocks the key; or, should there be no one to answer, the bell continues to ring until the connection is taken down, which also releases the ringing key.

The manual ringing key, which we have in the South Exchange, only applies the ringing current, so long as the "B" operator holds it in the ringing position. It does not lock, and restores as soon as released by the "B" operator. It is quite evident that this type of ringing requires more work on the part of the operator.

Now we come to the proposed St. Paul "keyless ringing" board. Instead of the operator having to set the ringing key as in the case of the "locking key," or holding the ringing key, as in the case of the "manual ringing key," she merely inserts the trunk into the multiple jack, and the ringing current is automatically applied.

It is very proper to ask, what is the advantage of one method over the other? Briefly the answer is: It increases the load which a position can carry. Therefore, it decreases the number of positions required to handle a given load, decreasing the cost of the switchboard, and the number of operators required to man it. For instance, with "manual" ringing, the standard load is 340 calls per hour, with "locking" 400, and with "keyless" 500 calls per hour. Suppose in St. Paul we have 5,000 calls to handle in a given hour: If we had "manual" ringing, we would require 5,000 divided by 340, or 15 positions. With "locking," 5,000 divided by 400, or 13 positions, and with "keyless," 5,000 divided by 500, or 10 positions. We are, therefore, saving with the "keyless" 5 positions over "manual" and 3 positions over "locking." Quite a saving.

There is one complication, however, with the "keyless" ringing which had to be overcome, and that is, ringing party line stations. With "locking" and "manual" ringing separate keys can be provided for ringing different stations on a party line, as we have some 700 lines and 1,000 stations of two-party service in St. Paul, it was necessary to provide a means of ringing these stations. This was done by using two separate multiple jacks for every party line having two working stations, and by an arrangement in the terminal room one bell is rung from one of these jacks and the second from the other.

For example: "3356" is a two-party line, "M" and "Y" stations both working. 3356-M becomes simply 3356, and 3356-Y becomes "7456." These two jacks both carry a separate set of conductors to the "frame" where they are joined to one pair of conductors leading out from the Central Office to some point near the location of the two telephones. It is so arranged that when we connect with "3356" the former "M" bell will ring, and when we connect with "7456" the former "Y" bell will ring.

This "jack per station" basis, as it is called, will also make a slight change in handling outgoing calls from these subscribers. Under the present arrangement, when an operator receives a signal on a party line she knows the number by examining the number plate, and must request only the letter. Under the proposed arrangement she has two number plates for each party line, and must ask the full number of the calling subscriber. It is possible that some of these subscribers may object to this change, so if any of you gentlemen, during your interviews with subscribers, should hear of any complaint of this nature, the Traffic Department will appreciate your setting them straight as to the necessity of doing so.

Admitting that it does impose upon the caller a very slight additional amount of brain work, there are advantages which greatly overbalance that feature. In the first place it should decrease the chance of misuse of signals, it being a very much more difficult matter to remember an entirely different number than merely one letter, and on incoming calls it eliminates the possibility

of a false "Don't answer." That is, from an operating error standpoint, we might still report "Don't answer" because of equipment trouble. It is possible with "manual" and "locking" systems for the "B" operator to fail to set the proper key, so that the bell is not rung and "Don't answer" reported, "keyless" ringing obviates an error of this kind.

It also increases the speed of connection, because the interval between the "B" operator inserting the plug and setting the ringing key is eliminated, the ringing current being applied simultaneously with the plugging in of the trunk. Further, it does away with the possibility of ringing the wrong station, by setting the wrong key. This will probably be the greatest improvement effected in the service, it is evident that there being no keys to pull the operator cannot ring the wrong station by pulling the wrong key.

No Chance

The Tall and Aggressive One—Excuse me, but I'm in a hurry! You've had that telephone twenty minutes and have not said a word!

The Short and Meek One—Sir, I'm talking to my wife!—Puck.

Underground Philadelphia

The October issue of *Philadelphia*, the magazine published by the City Government, had for its leading articles "Underground Philadelphia." It covers with numerous illustrations the conduit system, the gas mains and the subway. The underlying purpose of the article is "to bring clearly before the citizens of this old city the increasing importance of those great investments of money in utilities of daily living, hidden from sight and largely forgotten by the average citizen." In two previous articles written for the same purpose the magazine described the sewerage and the water systems.

Referring more particularly to the underground conduit system, utilized by underground wires, there are now 7,071,985 feet of conduit, containing 56,799,988 feet of duct, now operated under the streets of Philadelphia; in other words, 1,340 miles of conduit, which is sub-divided into separate spaces or ducts, with a total mileage of 10,758 miles. Of this immense number the city owns 95 miles of conduit, containing 692 miles of duct; the remaining mileage of duct-containing conduit is utilized by telephone and telegraph companies, electric light companies, and the Philadelphia Rapid Transit Company.

This mileage of ducts, if placed end to end, would reach three and a half times across the continent, or in a straight line from Philadelphia to Calcutta, India; further, this mileage of ducts carries to-day nearly 453,000 miles of wires—wire long enough to girdle the globe 18 times. There are 452,709 miles of wire in these ducts, which would reach 18 times around the earth. They carry over 300,000,000 messages yearly under the feet of people who seldom think of this complicated buried labyrinth.

There are 20,000 manholes, costing a total of \$750,000 to construct.

The first ordinance passed by city councils for underground conduit construction is dated March 22, 1880.

Five members of the Voucher Division recently bowled a team from the Estimate Division of the Accounting Department, Philadelphia, in the Mint Arcade Alleys. Three games resulted in a score as follows:

Voucher Division 406 456 430—1292 Estimate Division 440 457 407—1304

Washington Division**R. G. HUNT, Division Correspondent**

It was reported to the Washington Commercial office that the subscriber to a certain telephone in one of the suburban exchanges was dead. One of the office salesmen promptly called the subscriber's residence to arrange for a superseding contract or a disconnection in case the family decided to leave the house. The line was somewhat noisy and our representative had considerable difficulty in making himself understood. He finally succeeded, however, but was then unable to understand the subscriber's answer. After several requests to speak louder, the called party summoned all of his vocal power and shouted, "'Deed, Mister, honest I ain't dead. I'll come into the office to-morrow and prove it to you.'" After the line had been put in order a day or two later, we found that the subscriber had stated to one of our employees that he was *deaf* and had considerable difficulty in hearing over his line.

An application has been received from Weaver Brothers, discontinuing their two-party flat rate business service and establishing in its stead a private branch exchange with 2 trunks and 4 stations.

Supreme Court Justice Charles Hughes, formerly Governor of New York, has arranged for the installation of No. 2 private branch exchange service in his residence.

A new position for the Gaithersburg exchange switchboard has arrived. This section will have a capacity of 90 lines. There will be 10 cord circuits and 10 trunk circuits. Two operators will be required. Gaithersburg is a small town located in a rich farming section of Maryland.

Three new positions are in progress of installation at the Cleveland central office, providing for 500 new lines. The work will be completed early in January, 1912.

Volta Bureau, Washington, D. C.

Alexander Graham Bell, whose fame resulted from his experiments in the interests of the deaf, founded in 1881 the Volta Bureau at Washington, D. C. This institution in a separate building at Thirty-fifth and Volta Place, is devoted to the gathering and disseminating of information concerning the education of the deaf or dumb. The library contains 30,000 volumes on the subject of deafness and is said to be the largest of its kind in the world.

One of our salesmen entered the office of a large real estate operator the other day and found the real estate man in trouble. He had just received an offer on a valuable residential property, and it had come to his attention that a competitor had also received an offer on the same property the same day. The property had been listed with a number of real estate dealers. The owner's movements were uncertain. She was in Chicago at the time, but intended to leave that day for Cleveland. The real estate man told our salesman that his competitor had telegraphed the owner, and that he himself also intended to do it, but if he did, he realized that the competitor's offer would be considered first, and probably accepted. Our salesman said promptly, "Call her up by telephone." The gentleman accepted the suggestion, a prompt connection was established, the offer was presented to the owner and accepted by her; in fact, the deal was practically closed by telephone. The

telegram had not yet been received by the owner at the time the telephone call was made. The agent was elated. He thanked the telephone for a good commission, which he would certainly have lost had he not taken our salesman's suggestion. He acknowledged that he had received a most valuable object lesson on the utility of the telephone, and commented upon the disposition of the average telephone subscriber to overlook and neglect so many of the time and labor saving uses to which the service might be put.



Photograph Taken by a Washington, D. C., Plant Man in a Ridgewood, N. J., Real Estate Office

Telephone Societies.**The Philadelphia Telephone Society.**

1420 Chestnut St.—December 5.

Speaker: P. W. England, Plant Engineer, Philadelphia.

Subject: The Wilmington-Washington Subway. The paper will be fully illustrated with lantern slides.

[Mr. England was employed by the American Telephone and Telegraph Company as Superintendent of Construction of the Wilmington-Washington subway.]

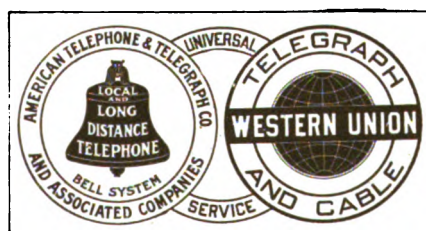
At the November 14 meeting announcement was made that at the meeting of the Board of Directors, held October 4, the following officers were reelected to serve for the season of 1911-12:

President, A. E. Berry.

Vice-President, H. C. Kunkel.

Secretary-Treasurer, J. R. Y. Savage.

A resolution was presented to amend Article II, Section 2, of the constitution to make employees of the Western Union Telegraph Company eligible for active membership. Action on this proposed amendment will be taken at the December meeting.



Newly Adopted Joint Bell and Western Union Sign

Northern Pennsylvania Telephone Society

The second regular meeting of the season was held in Leonard Hall, Scranton, November 17.

H. F. Hope, Plant Engineer, Harrisburg, presented an illustrated talk on "Modern Telephone Construction Methods." An encouraging number of members was present.

Other speakers were C. P. Williams, Traffic Supervisor, Scranton; H. L. Badger, District Plant Superintendent, Scranton, and C. F. Brinbin, District Manager, Wilkes-Barre.

The Baltimore Telephone Society

5 Light St.—December 6.

Speaker: H. B. Stabler, Plant Engineer.

Lawrence County Telephone Society

A meeting of the Lawrence County Telephone Society was held on Friday evening, November 17, 1911. Two very interesting papers were read, one by Chairman R. T. McKinney on "Fire and Water Protection," and one by Secretary C. G. Shontz on "The History of the Telephone."

Western Union Conference

About fifty representatives of the Western Union Telegraph Company held a conference October 19 at the Hotel Walton, Philadelphia. J. W. Reed, District Commercial Superintendent, Philadelphia, presided and spoke on "Enthusiasm and Optimism." Among other subjects discussed were papers on "Efficiency of the Messenger Service," "Relations Between Telegraph and Telephone Companies," "Office Atmosphere," "Solicitation of Business" and "Courtesy."

Organization Changes

W. E. Ziegler, formerly Wire Chief at Greensburg, Pa., has been made Field Engineer and is now located at the Plant Supervisor's office.

J. A. Gaghagen, formerly assistant, has been appointed Wire Chief at Greensburg, Pa.

T. Larkins, Climber, has been made Foreman of the Short Line Crews at Pittsburgh.

J. M. Clutter, Lineman, has been appointed Toll Repairman in the Grant central office at Pittsburgh.

J. A. Zelle, Location Tester in the Cable Division, Philadelphia, has been made Specification Writer in the office of the Middle District Engineer.

W. D. Lindsey, formerly in charge of sales in the Philadelphia District of the Western Electric Company, has been transferred to New York and placed in charge of telephone sales, advertising, reporting, etc. P. L. Thomson, Advertising Manager.

L. C. Collier succeeds Mr. Lindsey at Philadelphia.

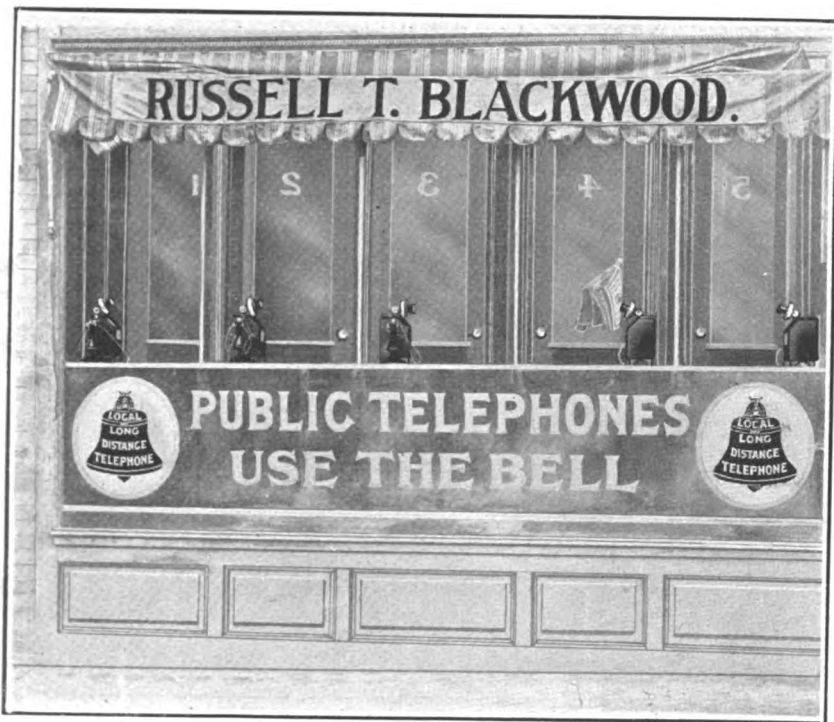
His Number**From Suburban Life**

The teacher asked, "When did Moses live?" After the silence had become painful she ordered: "Open your Old Testament. What does it say there?"

A boy answered, "Moses, 4000."

"Now," said the teacher, "why didn't you know when Moses lived?"

"Well," replied the boy, "I thought it was his telephone number."

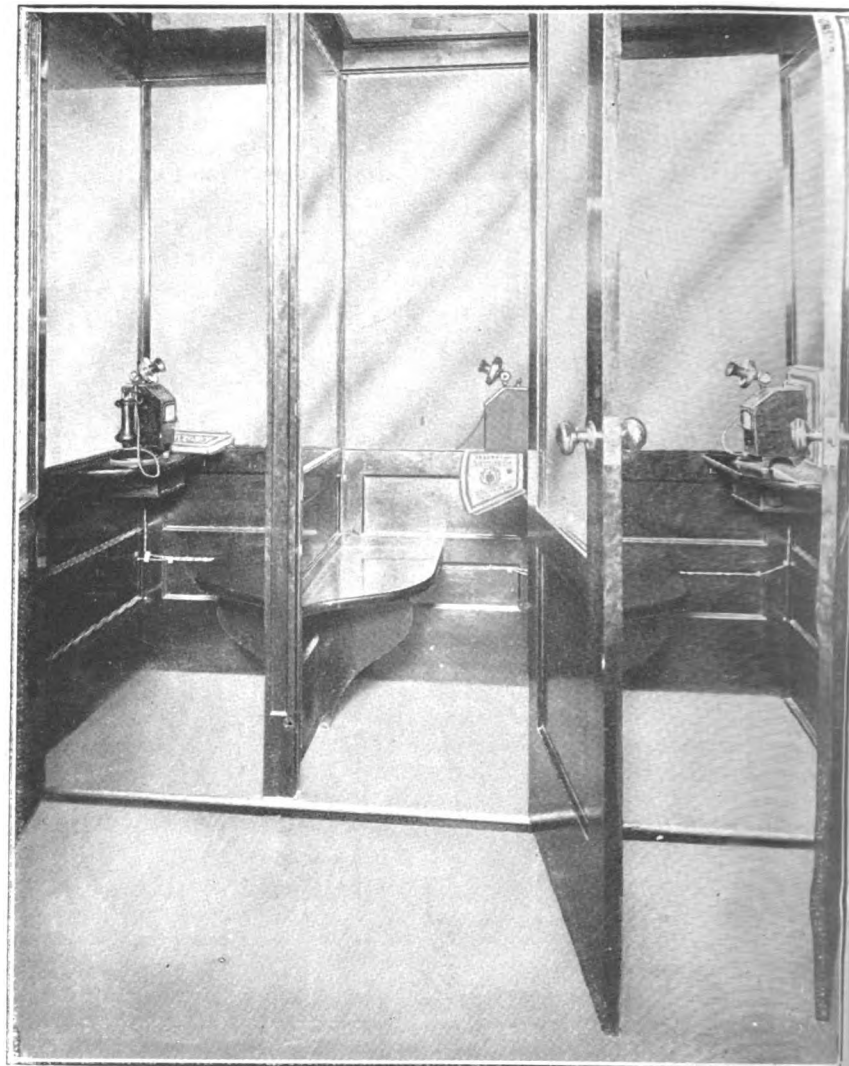


Adequate Telephone Facilities in Philadelphia Drug Stores

It is, perhaps, generally known that there are no cities in the United States in which the feeling between the druggists and the Bell Telephone Company is better than in Philadelphia. This friendly feeling has been growing for a number of years. At present, many of the pharmacists have suggested and put in practice plans which have increased the Bell telephone business originating from their stores over 100 per cent. In doing so they have not only added to their own commissions, but have encouraged the telephone habit among customers and their associates who happened to be waiting while their friends were telephoning. During the evenings, when these drug store stations are most generally patronized, it has been noted by the proprietors that their telephone facilities were inadequate. Prospective patrons were often compelled to wait their turns in using the Bell. This was especially noticeable in those stores with a limited number of booths. Sometimes the would-be-users waited for a while and then left to walk a few squares to other stores having more booths.

At first, when the attention of two druggists in different parts of the city was called to this loss, they stated that they appreciated the need for more booths, but had no room for them. The utilization of show windows for this purpose was suggested by our representatives and agreed to by the two druggists. Booths with

Exterior and
Interior Views
of Booth
Equipment
in Philadelphia
Drug Stores



glass sides and tops have been built to order by the cabinetmakers and placed in the show windows. One side of each compartment is formed by the plate glass of the window so that telephone patrons may see up or down the street while telephoning. There are other points in favor of this location. The booths are light and cheerful, and the listings of subscribers may be easily read. Many druggists with a number of windows dislike to spend so much time dressing them each week; the window booths save this work. Being always in view, the booths are located without delay by users and act as a continual advertisement to the store patrons and to the public. They impress the fact that those stores have booths and that personal conversations there are possible. Due to the fact that those stores have adequate telephone facilities, prospective purchasers of drug needs can always be assured of a telephone entrance when they order goods sent to their homes.

Telegrams may also be sent by telephone from any of these stations, and the druggists are pressing this business among their patrons with encouraging results.

There are now 810 Philadelphia drug stores in which public Bell telephone stations are located. Of these, 480 receive 33 1/3 per cent. commission, and the remaining, whose receipts are less than fifty cents a day, receive 25 per cent. commission. If the latter class would aid us in the use of Bell service so that their stores would each produce annually \$40 additional, they would all receive 33 1/3 per cent., or \$20.50 additional commission. In other words, they would receive over half of the \$40 annual increase in business.

The National Association of Retail Druggists, which has 12,000 members, held its thirteenth annual convention at Niagara Falls, September 11-14. Six hundred were registered in attend-

ance, representing 1038 affiliated organizations. At this representative meeting D. J. Reese, member of the committee on telephones, and chairman of the local (Philadelphia) committee, made a report which should interest every telephone employee in our company.

As stated in the September 25 issue of the *American Druggist and Pharmaceutical Record*, Mr. Reese said that the relations between the pharmacists and the companies in Philadelphia are most harmonious and that it is a pleasant duty to act as spokesman for the pharmacists in such circumstances. He explained that there are two telephone companies in Philadelphia, one of which does about 85 per cent. of the business. During the past eighteen months the Bell Company has spent over \$40,000 in putting in improved installations in the drug stores of the city.

Further, Mr. Reese showed what has been done in Philadelphia toward increasing the telephone business originating in drug stores. In ten cases where additional inside booths have been installed the monthly receipts have increased from 53 per cent. to 117 per cent! Also in ten cases where window booths have been installed—the monthly receipts have increased an average of 104 per cent! The latter is more surprising, inasmuch as many of these stores already had booths in less conspicuous locations.

The enthusiasm among those proprietors who have had window- or other booths installed is rather surprising to telephone representatives who have interviewed them.

At 3 P. M., recently, the Philadelphia Equipment Foreman received an order for a No. 1 private branch exchange, and at 10 A. M. the following day had all 6 trunks and 7 stations in working order.

"Hello! Is this
Wills-Jones?
"I want you to serve
me with your CLEAN
MILK. Yes, begin
at once."

Why don't you tele-
phone us your order
to-day for our abso-
lutely CLEAN MILK?

WILLS-JONES
DAIRIES



A Philadelphia street car advertisement which urges patrons to telephone their orders.

THE TELEPHONE NEWS



VOL. VII

PHILADELPHIA, PA.

DECEMBER 15, 1911

NO. 24

The Gateway of the South

L. B. Taaffe, Traffic Department, Baltimore

Telephone Transmission Engineering*

Frank B. Jewett, Transmission and Protection Engineer,
A. T. & T. Company

BALTIMORE, the metropolis of Maryland, has had some surprising changes during the past decade. While it was gaining 9.7 per cent. in population it increased the number of Bell Telephones nearly 800 per cent. Its nearly square territory now covers about 31½ square miles, and provides living quarters for 558,485 people.

Baltimore is a manufacturing city and an important railroad point. While ship-building leads among the industries, the packing of oysters and fruits employs about 9000 people. About 8,000,000 bushels of oysters are gathered from the Chesapeake Bay and packed here annually. In clothing, straw hats, tobacco, meat packing and other industries, Baltimore holds a high place.

The city has more railroad tunnels and consequently fewer grade crossings than many cities of its class. Two railroads have an aggregate of over two miles of tunnels.

Baltimore is named in honor of Cecilus Calvert—Lord Baltimore. A town of 60 acres was created by act of assembly, August 8 1729, and the name was chosen January 12, 1730. The names of its streets, as well as those of other surrounding cities, are replete with historic interest. The title "Monument City" is derived from a number of elaborate monuments erected by public subscription. Of parks, that known as Druid Hill is stated to be one of the finest of the natural scenery class east of the Yosemite.

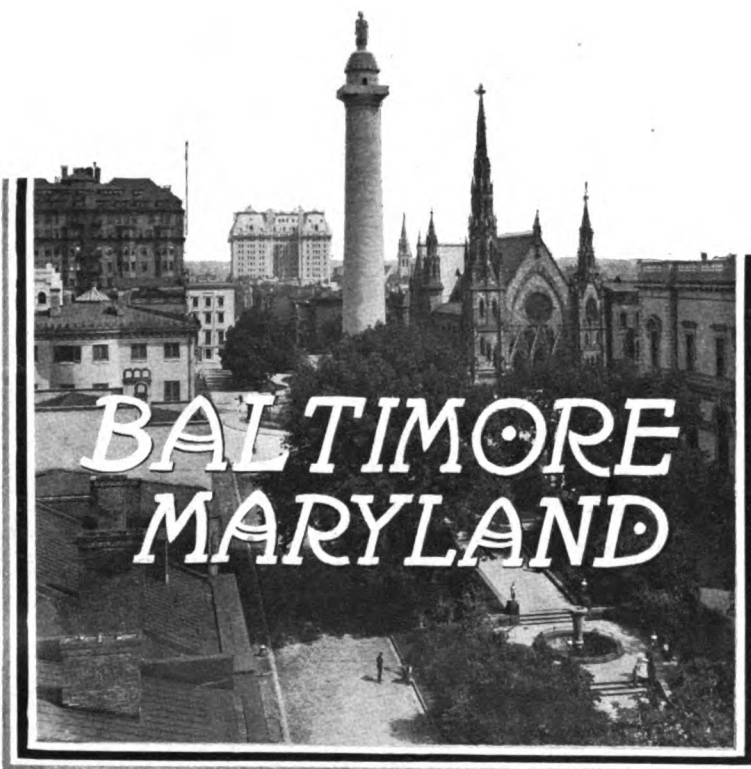
Among other lines of progress Baltimore leads in publications devoted to the South's development. In exports it ranks second only to New York, and in imports, fifth in the entire country. The growth in this particular is due largely to the fact that it is situated at the head of the largest bay on the Atlantic coast.

Prior to 1904 the telephone made rapid strides both in the number of stations and in the various classes of service, but after the \$150,000,000 fire, February 7, 1904, it gained even more rapidly.

The problem which the Traffic Department has had to meet may well be understood.

There are now eight central offices from which are operated over 23,000 business, and 21,000 residence stations. *St. Paul*, with its central location, has the largest number of business stations, and *Madison* leads in residence telephones. *Mt. Vernon*, which is a close second in residence development, leads the *Wolfe* office in total stations by less than 200.

Baltimore has approximately 11,000 informa-



tion calls daily, covering every subject of general interest, historical, political, mathematical, geographical, social and domestic, as well as calls of mere curiosity. Of late, however, arrangements have been made with one of the newspapers to handle practically all of these questions.

One of the interesting and important problems in operating is that of training applicants for positions in the operating field. It is probable that the work of the Baltimore school in this line is not excelled anywhere. During a recent year, 1154 applicants were registered from whom 369 student operators were chosen. Of these, 257 were graduated.

In the Baltimore operating force a number have been employed ten years or more, among whom are the Misses Helen M. Harper, Jennie Kilmer, Lena Ratcliffe, Rose T. Romoser, M. Edna Simmons and Marie Helen Wunsch.

Miss Harper entered the service at the former *St. Paul* central office in May 1899. In 1904 she was made monitor. Shortly after the fire, having been transferred as monitor to *Mt. Vernon*, she became Supervisor in 1905.

(Continued on page 5)

WHEN I came to write out the few remarks which I have to make to you this evening I began to wonder whether it might not have been more appropriate to designate them as "my job and what I think it covers," rather than by the more sonorous title which I gave to your Secretary some time ago. At that time I had not given the subject of this evening's remarks the same consideration that I have since.

Early in October I was asked to say something to the Washington section of the American Institute of Electrical Engineers, and having only a few days at my disposal for the preparation of a paper I naturally chose a subject on which I thought it would be easiest for me to prepare a paper. The paper was entitled "Telephone Transmission Engineering," and when Mr. Mouradian transmitted the compliment of your society in asking me to speak to you tonight I, being of a constitutionally lazy disposition, immediately decided that the same paper which I had given in Washington might, with some alterations, be palmed off on you; hence, the designation which has appeared in the notice for this evening's meeting.

In looking over the Washington paper, which was prepared essentially for non-telephone engineers, to see what changes I should make to fit it for presentation before an audience familiar with tele-

phone technique, I began to wonder what really constituted transmission engineering and who really were transmission engineers. Like all the rest of us connected with this rapidly growing industry I have had very little time to devote to anything except the immediate pressing requirements of the particular phase of the work on which I am engaged, and I have never before really sat down and thought out the relation between transmission engineering and the other varieties of engineering which we now have with us.

As a preliminary to answering the question of "What is transmission engineering and what place does it hold in the economy of the telephone organization?" I thought it might be well to refresh my mind on the definition of the words "engineer" and "engineering." On looking the matter up in the Century Dictionary this is the satisfaction I derived. For the noun "engineer" I found this definition: "One skilled in the principles and practice of any department

(Continued on page 8)

*A Paper Presented before The Philadelphia Telephone Society, November 14, 1911

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The Telephone News

Published the first and fifteenth of each month in the interests of

The
Bell Telephone Company
of Pennsylvania



The
Chesapeake & Potomac
Telephone Company

The
Delaware & Atlantic
Telephone & Telegraph Co.

The
Diamond State Telephone
Company

The Central District & Printing Telegraph Company

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to whom all communications should be addressed

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Vol. VII DECEMBER 15, 1911 No. 24

Letter Writing

IN THE TELEPHONE NEWS of January 1, 1909, and April 1, 1910, there appeared carefully prepared articles on the subject of Letter Writing. The May, 1910, issue of *System* also contained a comprehensive paper on "The Letter That Reflects the House," showing how the Crane Company emphasizes the importance of correspondence.

One point in THE TELEPHONE NEWS which has given rise to a difference of opinion is that of the salutation. Is it correct to address the *person* to whom one is writing or the *firm* of which he is a member or employee?

When THE TELEPHONE NEWS discussed the subject, its conclusions were drawn from the best obtainable opinions on the subject appearing in standard works. The majority held that it is more courteous and personal to address the individual. *System*, on the other hand, states that the Crane Company holds the opposite opinion—that the personal tone of a letter is to be avoided.

In discussing the subject further we may say that there is justification for both practices. We of the Telephone Company—a public service corporation—are always educating the public to feel that a corporation is only a group of individuals working toward a common end. As a means of emphasizing this, we address many of our letters in reply to theirs to individuals and encourage them to do so in return. When a large company, to facilitate the handling of its business, is divided into departments, divisions and districts, it is obviously quicker and easier to have its incoming mail addressed to the men in charge of those branches. Any other method would necessitate the maintenance of a large correspondence division or a complicated keying system for use on all letters. Some firms who advo-

cate the Crane plan, number every letter and ask correspondents to use these numbers in replying; others assign code letters to the departments and require them to place at the top of each typed sheet the code letter and the number of that particular communication. This plan occasions a request that in replying the code be mentioned. While it provides one way out of the difficulty it seems to us to be the opposite of what we are striving for—the personal touch.

In maintaining this aim the use of the singular pronoun "I," instead of "We," carries the point one step further. It is plainly incorrect to begin a letter, "We acknowledge your letter of December 10th" and to sign it "John Doe, District Manager." It is as important to use the same person throughout the communication as it is to use the same tense. Under the usual circumstances a letter begun with "I" and signed by an officer over his title is entirely appropriate. Perhaps the one exception is in a case where a representative of the company speaks authoritatively on matters of policy or general conduct of business—and under these conditions, inasmuch as the company's attitude and not the individual's is expressed, it is obviously proper to say "my company" or "we."

Seeing the End

"YOU cannot do a thing properly unless you see it completed before you start," said an employee of a large corporation to an associate.

A passerby overheard the remark and was impressed, not because of the remark—because it is not new—but because of the fact that we are all learning day by day, the homely truths with which our parents and grandparents must have been familiar.

Take, for example, as common a thing as gardening. If we do not plant certain things in their own particular seasons the crops will be of little or no value. Further, if we neglect them or fail to benefit by the result of experience of previous years, we alone will bear the loss. We must see the matured yield of the planted and carefully cultivated seed and appreciate the difficulties to be overcome before harvest, or we will meet with the same failures as of the year before.

The value of anticipating each problem as it arises, of being prepared to meet it, and of seeing clearly its successful culmination—all these things are evident to the right-thinking man. Failure to do them causes the worker to plod along almost in the dark avoiding serious blindness per-

haps more by good fortune than by careful foresight.

For example, imagine you have a fire to build. That's the seen end toward which you must work. Are you going to begin by piling on the big logs? Hardly. First comes the careful make-ready process—the paper, kindling, and perhaps a bit of oil. Then the match flashes and the flames leap; and gradually you finish your job, just as you expected, by placing the heavy, long-burning fuel. You can safely do it now—you saw your work completed before you started. Even in our most commonplace duties the plan is none the less applicable. To issue or complete a line order, to bill or collect an account, to plan or complete a change in plant distribution, to receive or O. K. a call—each involves seeing the work completed before it is begun. Thus the various difficulties to be met by yourself or others are anticipated and in a measure overcome in advance. There is no rule more useful and no plan more fitting in the telephone or any other business than to practice seeing the end of any particular thing before the work has been begun.

A Salesman's Philosophy

"DO you know," said a traveling salesman the other day, "one of the most common causes of complaint met with is that of the high cost of living and the comparatively small salaries? Frequently I hear business men or their assistants discuss the subject and occasionally I am well enough acquainted to offer my solution of the problem."

"I believe that our opportunity to obtain actual needs is as great now as it was for the man of fifty years ago. Some who might oppose this view are those who have and encourage extravagant tastes. Soon after receiving salaries for any period they act on momentary impulses and spend them lavishly—not always in ways to obtain the best values or the most needed articles. They purchase in haste and repent at leisure and when the next payday comes repeat the experience without having sufficiently realized just how indigent they have been."

"I hold that it is everyone's duty to plan for future self-support and to *work and live contentedly*—especially when working conditions are as favorable as I find them where I have occasion to go."

The experience recited is not original with that salesman. It is simply his observations and treatment of a problem in a common sense, Mrs. Wiggs' way. For that reason it is here given in the salesman's own terms with the hope that we may all profit by it.

J. C. WEIRICK, Division Correspondent

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Atlantic Coast Division

J. R. ANDERSON, Division Correspondent

Bridgeton Sub-District. The house of a Williamstown subscriber, connected by a multi-party line to the Williamstown exchange, caught fire early one Sunday morning. He immediately called the operator and asked her if she would notify everybody in the near neighborhood who had a telephone. This was done and enough people answered to help him save most of his property.

A baker at Pitman, while out on a route with his wagon about six miles from Pitman, was located and called by telephone by his wife. She told him they had run short of bread at the store and that customers were still coming for bread. He immediately telephoned to Camden for a supply, and by the time he arrived in Pitman the bread had arrived.

LORE.

Camden District. During the past two weeks our Plant department has completed 600 feet of 25-pair No. 22 gauge cable and the setting of five 30-foot poles on Penn Street, Woodbury, N. J., also 1840 feet of 25-pair No. 22 gauge cable on Delaware Street, to take care of future business in these sections.

In addition to this cable has been pulled in Wenonah from the trunk line on Glassboro Avenue to the central office, 1500 feet of 30-pair No. 22 gauge, doing away with open wires and lock aerial construction.

A private line has been completed between the I. P. Thomas & Co., 1000 Drexel Building, Philadelphia, and their works at Mantua Point, N. J., approximately a distance of fourteen miles. In addition to this contract, this firm has direct line unlimited local service terminating in the Paulsboro central office. For a period of fifteen years it was a Camden subscriber, having direct line unlimited Camden and Philadelphia service with a ten mile radius.

On November 1 we had a shunt on the Woodbury and Salem trunk. A trouble man went in search of it, and on reaching Mt. Royal discovered on the top of a 40-foot pole an "Irish Mail" express wagon, such as are used by children. It was tied securely. He endeavored to find the owner, but nobody knew anything about it. Possibly it was a Hallowe'en joke, but it caused some trouble to complete the job. Our man towed the affair to Woodbury on the rear of his motor cycle and his child is to-day its proud owner.

The estimate for pole line and cable covering the suburbs of North Merchantville and Amon Heights has been completed, making an addition to the Merchantville Exchange of about one-half square mile of territory. Both towns are fast-growing suburbs and will soon fill the 3100 feet 50-pair No. 19 gauge cable. There was also 3250 feet 25-pair No. 19 gauge cable erected. Nine contracts are now on file as a start.

In Moorestown we have added to our exchange and cut in service about 800 feet of duct and underground cable on Central Avenue, west of Mill Street; also on Chester Avenue we have extended underground plant to the Bridgeton road, about 400 feet, to connect with the Farmers Telephone and Telegraph Company.

A short time ago one of this Company's subscribers called at the Camden Commercial Office and without solicitation made the following statement:

"My telephone was the means of saving my life on August 6 by the quickness with which I was able to secure the services of a physician."

She stated further that she was very much pleased with the treatment received from the Company, especially with the method of collecting bills.

CROXTON.

Dover District. A young lady residing in a town in lower Delaware, recently visited a friend living in a distant town. During her absence from home her mother read an account in a newspaper detailing an accident to her daughter, which the paper stated might prove fatal. The mother called up the distant point and received the assurance that her daughter was all right, but the mother was in a critically nervous condition, and was relieved only by hearing her daughter's voice, when she was brought to the telephone. The doctor stated that the mother undoubtedly averted a breakdown by the prompt assurance.

PRINCE.



Display of "The Telephone Pharmacy," Norristown, Pa.

Doylestown District. It is expected that maps of the Bell telephone system throughout the United States will be placed in the high schools throughout the rural districts. So far it has worked out very successfully. Several high schools throughout the country districts already have made application for the maps.

HENNESSY.

Norristown District. The Plant department has about completed the installation of underground conduit in Conshohocken. This will greatly improve the local conditions there.

We have just organized another telephone "club" in the Norristown district. This club, to be known as the Cowpath Rural Telephone Company, is served by the Souderton exchange and is starting with six subscribers.

BEERER.

Trenton District. The contract of the Lawrenceville School at Lawrenceville, N. J., providing for a private branch exchange of 26 stations recently has been standardized. This school is a preparatory institution to Princeton University and had an irregular private branch exchange contract prior to its standardization a few months ago.

The placing of the telephones at Lawrenceville School on standard basis is really a completion of the work toward standardization begun when the Princeton University contract was closed. All the Lawrenceville School telephones are now on a standard basis and the exchange has been making a very satisfactory growth in stations during the last year.

GARWOOD.

West Chester District. In a heavy wind storm a large tree (about three feet in diameter) fell across the Philadelphia, Paoli & Coatesville lead in the vicinity of Malvern. This tree carried destruction to the entire line, opening 66 lines. The linesmen were called out at once, and after driving nine miles had all the wires working at this point by 4 A. M. the next morning.

The new private branch exchange is now working at the West Chester State Normal School. **Wilmington District.** Salesman Hanly obtained an application for a cordless monitor board to G. P. Postles, 220 W. 10th St., Wilmington.

Salesman Pounds obtained an application for a No. 2 private branch exchange, 9 stations, from John Bancroft, of Rockford, Del., superseding a direct line and one extension station.

CHAMBERS.

State Grange at Atlantic City

The New Jersey State Grange held its annual convention at the Steel Pier, Atlantic City, during the week of December 4-8. Fifty copies of THE TELEPHONE NEWS with the Bridgeton agricultural story were distributed to the members.

An Enterprising Young Druggist

A young Philadelphian is proprietor of a drug store in Norristown, Pa., that is known as "The Telephone Pharmacy" because of its promptness in filling and delivering telephone orders. Through his progressiveness and willingness to adopt up-to-date methods, and his realization that the telephone must play an important part in the business world, he has built up a business foundation that promises a great future.

He started in business a little over one year ago. Like most young men entering a career, he was short of funds and it was necessary to economize at every stage, even in regard to his telephone. He did this by contracting for a low grade of service. As his business grew he began to realize the important part the telephone was playing in his success, and the advantage of a better grade of service to open wider the "telephone door." In all of his advertisements and window displays the telephone is a prominent feature. He is proud of the name which has been given his store, "The Telephone Pharmacy."

As an example of his novel methods to attract patrons, on a certain day, which was well advertised in the columns of the local newspapers, he offered a box of chocolates to the person telephoning an order nearest a secret hour. A record was kept of the name and address of each person calling and the time that the call was received. The record showed that over 40 per cent. of the day's receipts had come by Bell telephone.

The results of this scheme were so gratifying that the druggist has in mind several other schemes for encouraging the public's patronage, in all of which the telephone will play a leading part.

The following letter, addressed to the local district manager, shows that the subscriber has fully appreciated the aid of the Bell telephone in his success:

I thought it might be interesting for you to know that since my telephone window display I have noticed a considerable increase in the amount of business done over the telephone.

Saturday, November 18, I had a secret hour and to the person phoning an order nearest the secret time I gave a box of Apollo Chocolates. I opened the envelope at 9 P. M. and taking account of calls found I had 30, and that 40 per cent. of my day's receipts came over the Bell telephone.

The results were so gratifying that I have decided to make a Saturday special in which the Bell telephone shall be a feature.

The Gateway of the South

(Continued from page 1)

Appointed as Assistant Chief Operator at new St. Paul in December, 1906, she proved that she was entirely capable of handling an office, and was made Chief Operator at South in September, 1908. From there she went to Wolfe, a larger office, to take charge, and in June, 1910, was made Chief Operator at Mt. Vernon, the largest residential section exchange in the city. This position she holds now, and aids in furnishing to Baltimore's choice residences the best possible service.

Miss Kilmer came to The Chesapeake and Potomac Telephone Company (then the Maryland Telephone Company) in November, 1881. In 1892 she was assigned the handling of the Long Distance board, which at that time was located in the St. Paul operating room. This work she continued to handle until 1895, when she was promoted to the position of Chief Operator. Miss Kilmer was a rigid disciplinarian, but always just, and her hold on the loyalty of her force was unusual.

In the fall of 1903 Miss Kilmer was assigned charge of the Eutaw House public station, where she remained until the spring of 1908, when she was transferred to the station in the Equitable Building.

Miss Ratcliffe claims the distinction of having been longer in the Company's service than any member of its operating force. She was appointed an operator in October, 1880, less than two years after the installation of the first central office, then located in the old American Building, Baltimore and South Streets. She worked in the central office continuously, first as an operator and later as a Supervisor, until September, 1903, when she was transferred to the public station at the old Carrollton Hotel. She is now the evening attendant at the St. Paul Building public station. She is widely known, and very popular with the Company's patrons.

Miss Ratcliffe holds another record, and one of which she may well be proud. In her long years of service she has never been late in reporting for duty—a conspicuous example to an army of coworkers.

Miss Romoser, the St. Paul Chief Operator, entered the employ of the Company in November, 1900, as an operator at the former St. Paul central office, then located on the site of the present New Carrollton Hotel. She was made Senior Operator and Supervisor, and later appointed as Assistant Chief Operator at Madison, the first common battery switchboard in Baltimore.

This last move was made February 6, 1904, one day before the great Baltimore fire, which destroyed the office. She was sent to South in April, 1904, in the capacity of Chief Operator, and returned to Madison in 1906 to take charge. Here she remained until appointed Chief Operator at St. Paul in October, 1910.

Miss Romoser is a splendid disciplinarian, and holds the good will and active support of all under her, as well as the esteem of her superiors. She has an intimate knowledge of the telephone business, augmented by a natural alacrity of mind.

Miss Simmons, the Instructor of the Baltimore School for Operators, entered the service in January, 1900. Her qualities as an operator soon won promotion, and from Supervisor at St. Paul she was sent to take charge of Mt. Vernon when it opened, February 5, 1904.

The rapidity with which the Company recovered its feet after the big fire that destroyed not only its main central office, located in the bus-

iness center, but nearly all of its wires—then principally overhead—is the admiration of all who know what the work meant. Mt. Vernon was at once assigned to the greater part of the fire-swept territory, and the "Restored Service" subscribers poured in until the board was soon filled. These were circumstances that would test the ability of a Chief Operator greatly, especially one who had just been assigned that position, but Miss Simmons was equal to the emergency. In May, 1904, she was appointed the first teacher of the Baltimore school, and the quality of the operators now employed in the central offices throughout Baltimore speaks well for her integrity and discernment.

Miss Wunsch was appointed in November, 1885, as messenger girl in the first central office in the American Building. At the expiration of three years she was given a head telephone, and started to become the particular friend of every local telephone subscriber.

After having worked as a local operator for a few years she was made Toll Supervisor, and here her valuable memory obtained for the Company a great deal of business that another operator might have lost. For instance: She would remember places where she had found people when not at the location given, and often snatches of conversations would give her a clue as to their whereabouts. It is said, formerly when slack times permitted it, she would suggest to certain people that they call up some one in Washington, or in other places where she knew they had friends.

Miss Wunsch is now the attendant at the public station which the Company maintains at 5 Light Street, and business men on the street will go squares out of their way to have "Miss Ella," as she is widely known, handle the calls for them.

She possesses a voice that inspires confidence in the Company's patrons, a most valuable thing for an operator, as well as an unequalled disposition that makes each patron feel that he is the most important person in the city.

Miss Kilmer, Miss Ratcliffe and Miss Wunsch have been called the pioneers among the operating force at Baltimore.

Baltimore Division

J. R. BROHAWN, Division Correspondent

Recent private branch exchange applications obtained are J. H. Pentz, Attorney-at-Law, 600 Equitable Building, 9 stations; Postal Telegraph Cable Company, 11 stations; Stewart & Company, Department Store, 25 additional stations; J. W. Crook, Wholesale Grocer, 19 stations.

The Hochschild, Kohn & Co. department store has had printed and distributed, at each station throughout the store, slips for telephone orders backed up by ten rules for the good of the service. They are similar in points covered to those issued and used by the Wanamaker store in Philadelphia, and reproduced in THE TELEPHONE NEWS of October 18, 1907.

Annapolis District. A circuit between the Naval Academy foot ball grounds at Annapolis, and Bellefonte, Pa., was installed November 18. The plays during the game were reported direct to Pennsylvania State College. The circuit was cut in at 2.30 P. M. and used continuously until 4.25 P. M. We received much praise on the excellent service.

Hagerstown District. The employees at Cumberland enjoyed an oyster roast in November, that was given to celebrate the cut-over of the Western Maryland system; the employees re-

ceived the praise of their superiors for the efficient work during the cut-over.

It is probable that a central office will be opened at Hedgesville, W. Va., a town seven miles north of Martinsburg.

Havre de Grace District. About daybreak Sunday morning, November 19, fire destroyed a store and two dwellings in the heart of Perryman, Md., the occupants escaping in their night clothing. But for the prompt assistance of the residents of Havre de Grace, which is just across the Susquehanna River, a number of other buildings would have been destroyed.

As usual, the alarm was given by Bell telephone and the large siren whistle in the Havre de Grace power house quickly aroused both communities.

A. C. Brauer, Agent at Bel Air, Md., has obtained a plan "A" application for 8 stations, to be connected with the Fork Exchange. The line which will connect Sweetair and Baldwin will be known as the Sweetair Rural Telephone Company.

J. H. Nichols, Agent at Chestertown, Md., has obtained a Plan "A" application to connect 7 subscribers on Quaker Neck, Kent county, with the Chestertown central office. The line is to be known as Silver Hill Telephone Company. This is the fourth Plan "A" line secured in 1911 in that vicinity.

Salisbury District. A private branch exchange with 79 stations has been installed in the New York, Philadelphia and Norfolk Railroad Company's office at Cape Charles, Va.

The new central office building at Salisbury, Md., is almost completed. The plastering and the laying of the floors are under way, and it is expected that the equipment will be delivered not later than December 16.

Two rural lines arranged for in November are as follows:

NAME	CONNECTING AT	STATIONS
Pungoteague	Belle Haven	7
Ferry Road	Salisbury	8

The Pungoteague Company is in a potato raising district and Ferry Road subscribers live along the Wicomico River.

The Farmers' and Merchants' Telephone Company recently placed an order with the Western Electric Company for a three-position switchboard, also a chief operator's desk to be installed at Easton, Md.

A Wilmington, Del., salesman, who says that he always travels by telephone, stopped at our Salisbury business office and called eighteen business houses on the peninsula a few days ago. Within forty minutes sixteen of the calls were completed.

An Unsolicited Letter

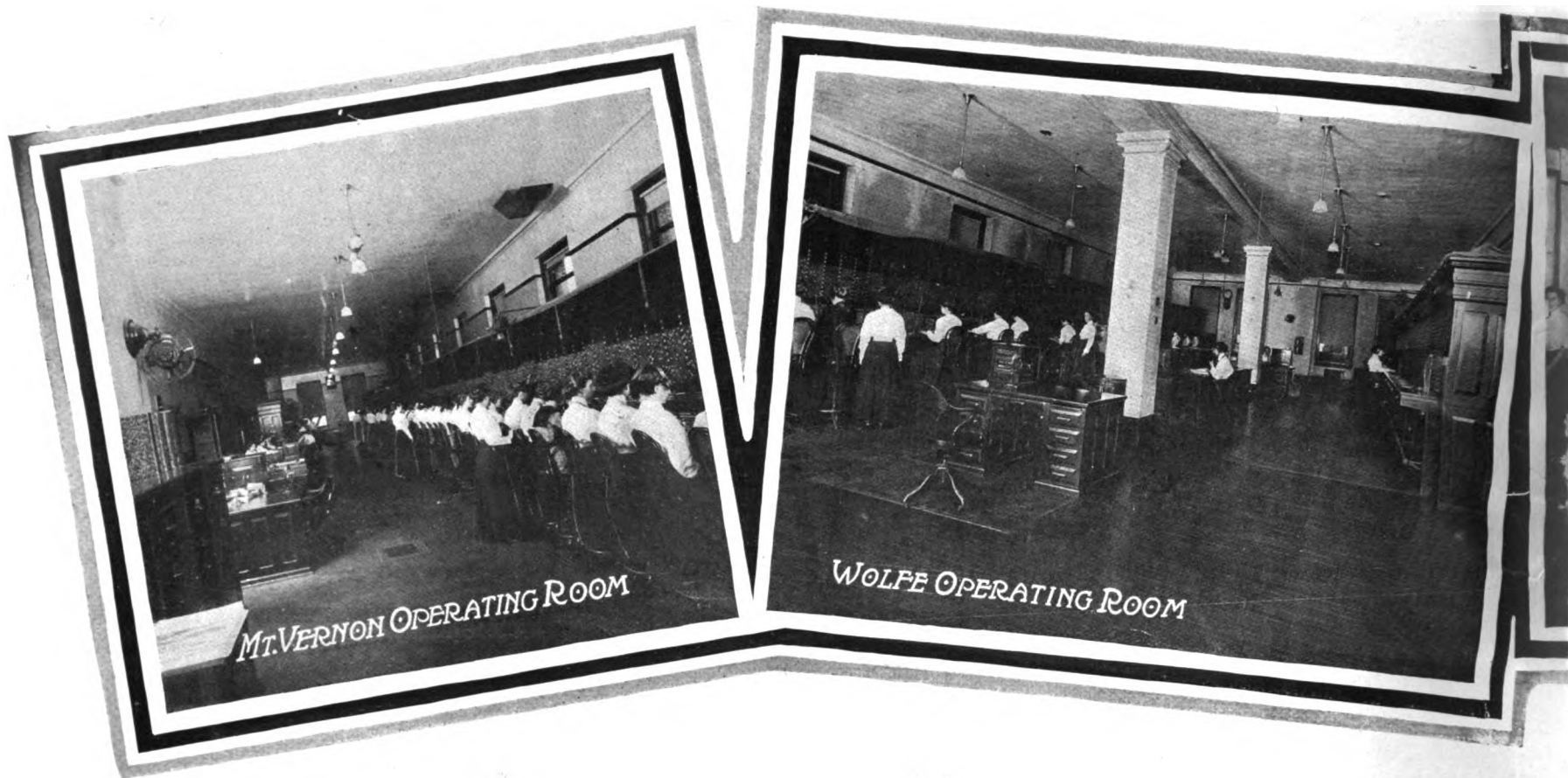
As a usual thing, the public comments on our service, or that of any public service corporation for that matter, only when it is unsatisfactory. The following letter indicates pretty clearly the attitude of one of our Princess Anne subscribers.

Princess Anne, Md., Nov. 14, 1911.

Mr. H. W. Carty, Local Manager,
The Diamond State Tel. Co.,
Salisbury, Md.

Dear Sir:—I regret to ask that you remove my telephone if possible by December 1, 1911, as I have sold my property here and will move the first of the month to Norfolk, Va. The service that you have given me here has been very satisfactory and I cannot understand why you do not have more patrons in this town.

I thank you very much for your favors since I have had your telephone, and will say also that the girls in this office cannot be easily duplicated, in my judgment, as they work hard to get the party.

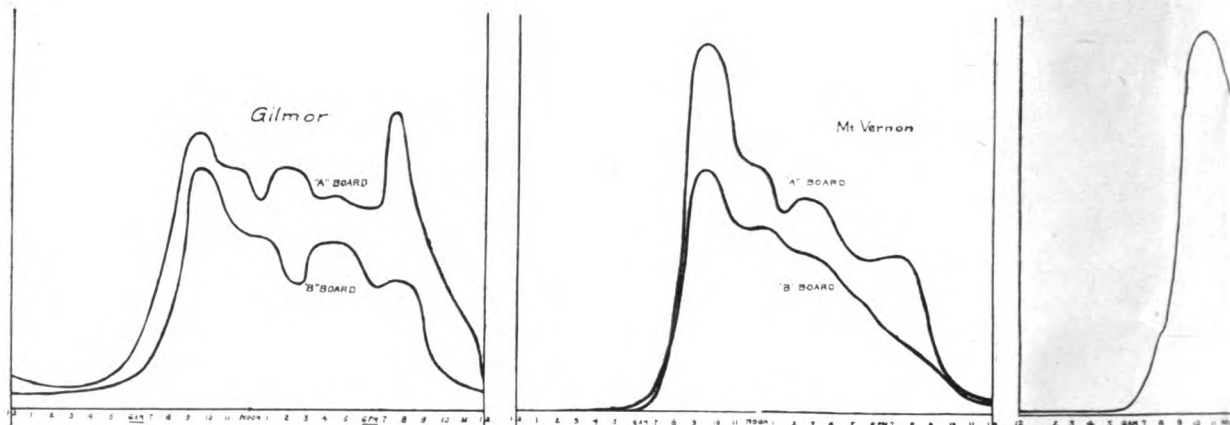


Baltimore, Maryland

The upper group shows views in three more important central offices of which Baltimore has a total of eight—St. Paul, Madison, Wolfe, Mt. Vernon, Gilmor, South Walbrook and Garrison.

Below are some of the city's pioneer operators. One of the greatest difficulties in local traffic work is that of handling the very high evening peak in Gilmor as brought out in the first curve.

(Continued on page 7)



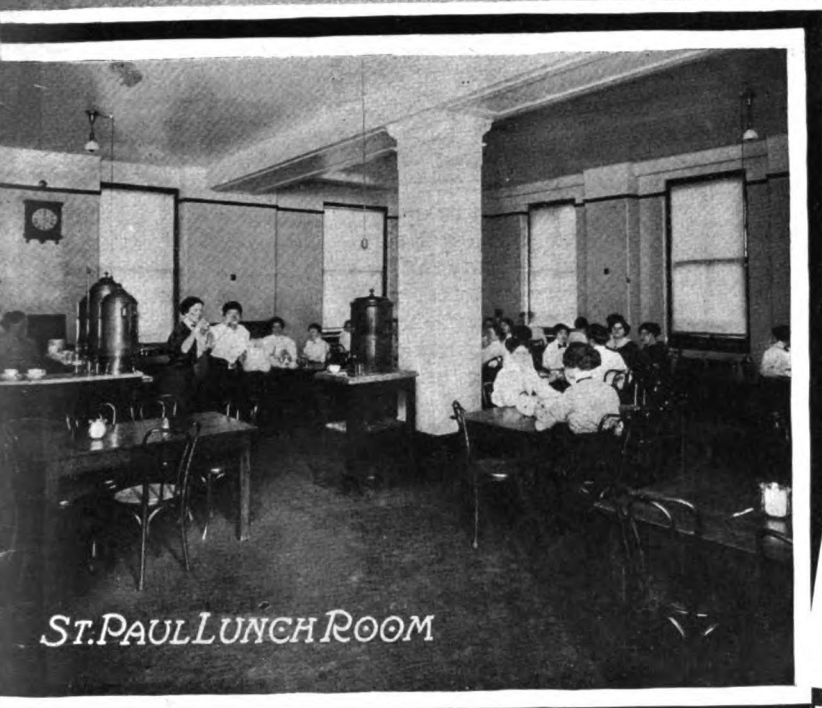
Miss M. Edna Simmons



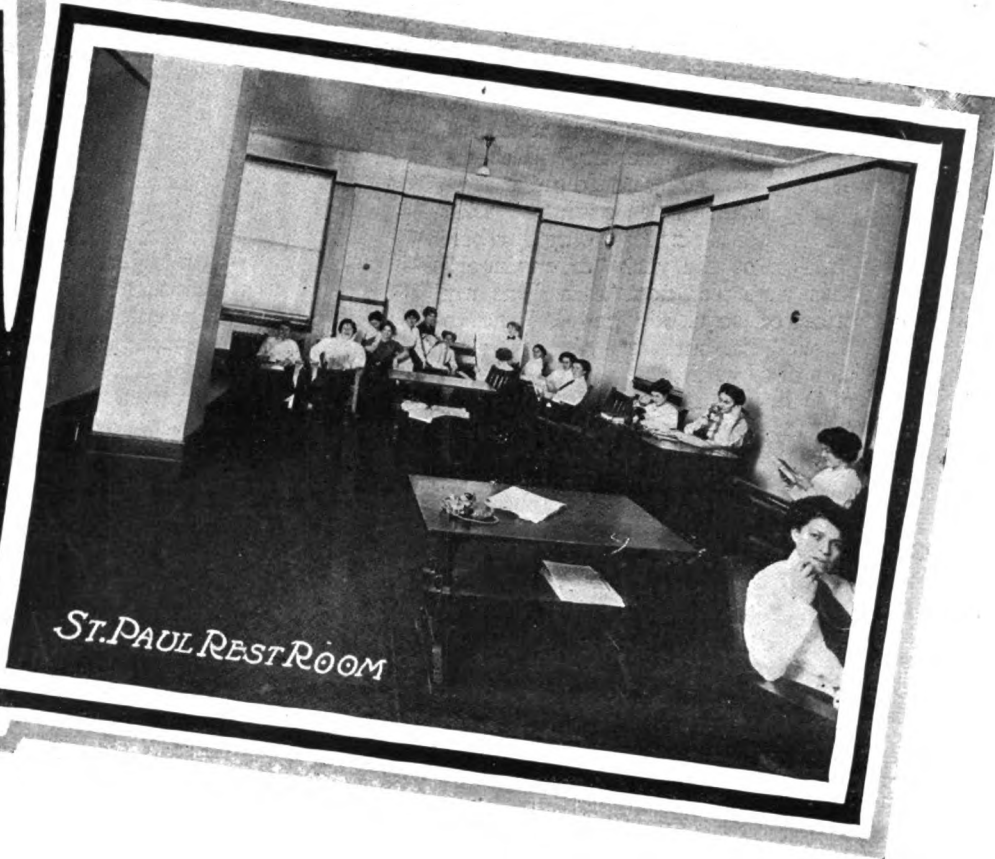
Miss Jennie Kilmer



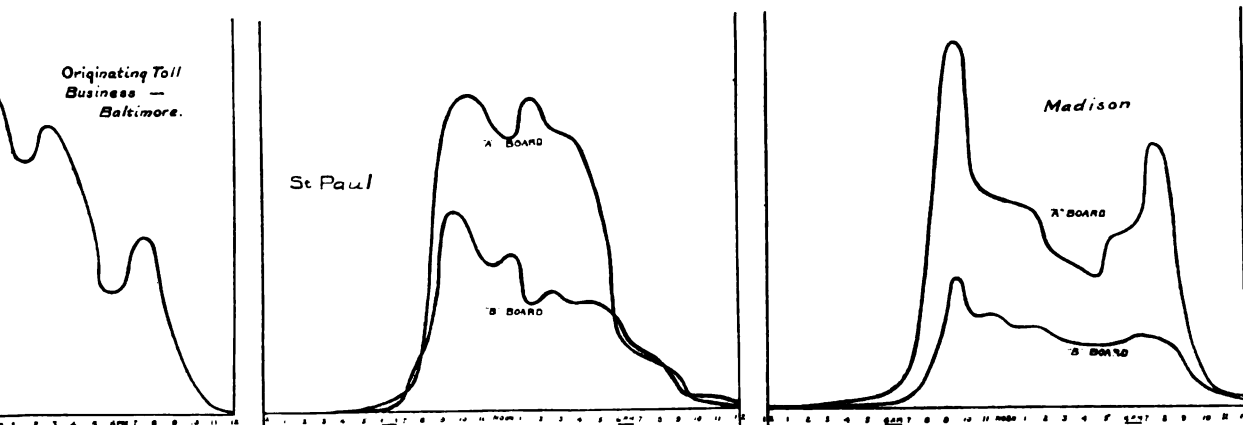
Miss Lena Ratcliffe



ST. PAUL LUNCH ROOM



ST. PAUL REST ROOM



The curves shown on the two center pages outline graphically the traffic handled from some of Baltimore's largest central offices and the out-of-town business originating in that city. The figures at the bottom of each curve indicate the twenty-four hour day. The morning peaks in the residential districts describe the traffic of marketers and shoppers, and in the afternoons and evenings, that of social affairs. In St. Paul, a business office, the decline after the morning rush is marked. The out-of-town curve shows what happens after the morning mail has been opened, after luncheon and again in the early evening. The marketing and shopping peak in Madison, a residential office, occurs between 8 and 9.30 A. M.



Miss Marie H. Wunsch



Miss Helen M. Harper



Miss Rose T. Romoser

Telephone Transmission Engineering

(Continued from page 1)

of engineering." That seemed satisfactory so far as it went, as I felt sure of the meaning of all of the words except "engineering." I therefore looked up "engineering" and found it designated as the verbal noun of "to engineer" with one definition of "maneuvering." Going further, to find the definition of the verb "to engineer" I found that this verb was not "active" as my previous condition of servitude had led me to believe it might well be, but was solemnly designated as "transitive" with a definition as follows: "To guide or manage by ingenuity and tact, to conduct through or over obstacles by contrivance and effort, for example, to engineer a bill through Congress." Now, I cannot say that this definition was very satisfying to one who had always looked upon himself as an engineer and who had had a sort of sneaking notion that his work was on a somewhat different plane from that of the Congressional Engineer or the Lobbying Engineer, or the Ward Heeler Engineer.

Not being satisfied with the learned definition of the dictionary, I set myself to the task of analyzing the situation as I believed it to exist in the telephone industry, with a view to finding some designation of my job which would be satisfying to my sense of the proper fitness of things. The first conclusion I reached after running over in my mind a few of the new branches of engineering, such as efficiency engineers, shop practice engineers, purchasing engineers, consumption engineers, production engineers and tomato ketchup engineers which have sprung into existence like the dragons' teeth of Cadmus of old, was that the term engineer should really be defined as "one skilled in the principles and practice of any department of life" and that its widespread and constantly growing use to designate workers in every field of endeavor is due largely to the failure of the English language to provide a proper single expression for just that shade of meaning covered by "skilled in the principles and practice of."

This conclusion backed up by the results of my further rumination on the scope of my present job which I am going to speak to you of in a minute convinced me that except for the necessity of having to learn a lot of designations, each one of our several so-called engineering divisions might readily be given a number designation and afford much needed relief to our good friend, the noun, "engineer." For example, Mr. Kilpatrick's division might be known as No. 5, Mr. Mouradian's as No. 6, Mr. Francis' as No. 7, etc. To derive the full advantage from such a system I suppose that Mr. Hayward, for example, might be designated as 1323. The thought of what such a number designation would mean in the saving of stenographers' time when writing letters and memoranda makes me believe that if the "efficiency" engineer, as such, ever secures a foothold in the telephone industry he will surely hit upon this as one of his first recommendations for increasing dividends and incidentally removing objectionable competitors from the engineering field.

This may all seem very trivial but I am really gradually coming to feel very much the same toward my designation as an engineer as I did at one time toward the term "Doctor" which a certain university conferred upon me in a moment of mental aberration some years ago. Of course, I never felt quite the same elation about the conferring of the Doctor's degree that I did at my graduation from high school, but, nevertheless, I felt quite satisfied with the thought shortly

before and after the actual event. Then I began to be impressed with the great number of doctors there were in the world, not only did I see hundreds of physicians' signs which I had never noticed before, but everywhere I went it seemed to me that the designation of "Doctor" was continually staring me in the face. There were doctors of osteopathy, doctors of physical culture, and doctors (and professors, too) who were horseshoers, and doctors who were chiroprodists. This got on my nerves to such an extent that I finally almost regretted the day that anybody had been given the license to apply the term to me. After many years this feeling has rather worn off and I have become hardened to the thought as I presume I will ultimately become hardened to the widely extended use of the term "engineer."

This brings me to the second result of the analysis of my relation and the relation of transmission engineering to the telephone industry. Using the terms in their accepted sense, I think that nearly all of us who are connected with the operating side of the telephone industry are of necessity transmission engineers. To illustrate this point we have only to remember that in the last analysis, the one thing that the Telephone Company sells and the sole license it has for existence is the electrical transmission of speech over wires. We don't sell a fine grade of signaling, although I will admit there was a time when it really looked as though that was our principal production, nor do we sell quick and ingenious operating methods, nor well thought out commercial plans or elaborate systems of accounting. All of these things are of vital importance to the successful carrying on of the modern telephone business, and I would be the last person to belittle any of them. I merely wish to impress upon you that it is for ability to talk and talk intelligibly and without undue effort that the telephone subscriber is willing to pay out his more or less hard-earned shekels. Unless we can afford him this facility with a reasonable degree of regularity we are doomed to lose not only our reputation but our license to do business. Under such circumstances our retrospective satisfaction in, say, a wonderful signaling circuit or an improved operating method, would be very much the same as the satisfaction of the surgeon who is forced to report "Operation successful, but patient died."

Bearing in mind that transmission, meaning by that ability to talk, and transmission only, is the one thing which we have to sell, I think you will agree with me that there are a large number of us who might well merit the designation of transmission engineer or any other designation which you choose for that phase of the work concerned with the maintaining and increasing our ability to talk over wires. First, and foremost, come the executive officers and particularly the general manager. If anyone is a transmission engineer par excellence, he is the one, for upon him devolves the final decision of the grade of transmission that should be furnished. To be sure, he cannot reach this final decision unless he is properly advised by subordinates who are skilled not only in the science of what can be accomplished physically, but who know also what it will cost to establish and maintain this, that or the other grade of service. While it is from subordinates that he must derive his facts regarding what is physically possible and the probable cost of each different arrangement, he must, with the help of his commercial assistants, make the final decision of what shall be furnished to the public.

Telephone transmission is, like almost everything else with which we have to deal in this world, *i. e.*, the better the quality of the thing sought the more it will cost us; thus the higher the standard, that is the louder the volume sup-

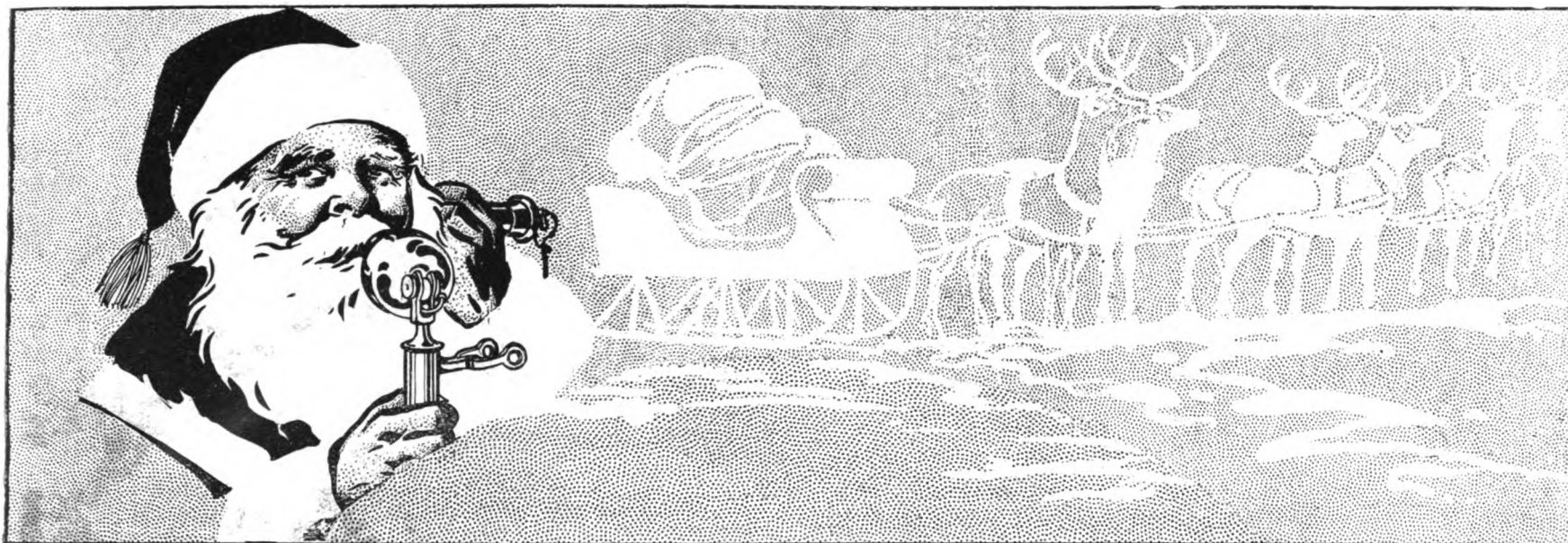
plied to each individual subscriber, the more in general will we have to charge in order to secure a reasonable interest return on the money invested. Consequently, the general manager is between the Scylla of a transmission standard with fixed charges so high that they will act as a deterrent on the use of the telephone and the Charybdis of transmission so poor that nobody will wish to employ the service. Thus, if he elects to give a gilt-edge grade of transmission, the company may not be able to pay dividends on the money invested, while, if he wishes to make a temporary good showing and save money for a year or two he may choose a grade of transmission so poor that in the long run the service will be unsatisfactory.

There is no hard and fast rule of what constitutes a commercial grade of transmission. In fact, what constitutes a proper standard in one locality under the conditions existing there may be absolutely uncommercial in another locality under different conditions. For example, in a thickly populated well-to-do community especially where competition exists, it may be the best of business policy, in fact, the only means of salvation in a life and death struggle, to afford an extremely high grade of transmission, a grade of transmission so high that it is much better than is necessary to permit the subscribers to carry on their business with ease. Such a standard of transmission in a sparsely settled community, on the other hand, would be not only foolish but probably suicidal.

Thus, while we who bear the designation of transmission engineers and who are carrying on a certain phase of the multitudinous activities of the modern telephone organization have grave responsibilities, we are not in general responsible for the business policy of the organization. Not being responsible means usually not being in possession of sufficient facts to warrant an intelligent decision, and any attempt to go outside of our proper sphere is usually doomed to disastrous failure. So far as the setting of transmission standards is concerned, our work lies in the proper determination of a myriad of physical facts and the presentation of these facts in concise usable form to those who have to make a final business decision. This presentation should contain a definite statement of just what alternative schemes really mean in the matter both of transmission and cost. It may include the alternative we ourselves think should be chosen, and our reasons for such choice. We should realize, however, that in each case our superior has a broader viewpoint and has or should have a somewhat juster appreciation of all the facts involved and may be in a position to decide that what looks absolutely necessary to us may not on the whole be for the best interests of the Company.

While the executive officers and particularly the general manager, have great responsibilities in connection with transmission matters and greater control over the ultimate success or failure of the industry as a whole than the rest of us they are not the only ones who must be considered as transmission engineers although not bearing that title directly. I shall not take the time to point out more than two or three illustrations of what I have in mind, as I think that each and every one of you who is in any way concerned with the plant, traffic and commercial departments will be able to find numerous cases in his own work where the decision of what should be done has a direct connection with the transmission efficiency of the plant. Let me take a single example from each of the three departments.

Before citing these examples I might say that while there are exceptions it can be set down as an almost universal and certainly a good working rule, that the best transmission between two



subscribers will be obtained when the circuit connecting them most nearly approaches the condition of two wires without intermediate bridged or series apparatus, that it is best when the line is shortest and wholly in open wire and that where cable is used it should be in minimum amount and of as large gauge as possible. Also that in common battery installations, increasing distance of the subscriber's instrument from the central office brings in a rapid deterioration in the transmission.

Bearing these facts in mind, let us consider an example in which the commercial department is involved. One of the commonest cases which arise is that concerning long loops or extensions from private branch exchanges. The very fact that there is a private branch exchange takes the case some distance from the ideal condition that there should be no intermediate apparatus while the long loop takes it further. In a great many cases the user of the telephone at the end of this long extension desires toll or long distance service and if the commercial man, for the sake of apparently acceding to the subscriber's wishes and with a view to getting a mileage revenue for the loop, tacitly or otherwise gives the subscriber to understand that he can have proper service over the extension, he is assuring him of something which it is difficult and expensive for the telephone company to give and which may in some cases be practically impossible. Thus, while the apparent immediate result from such a promise may be of financial benefit to the telephone company, it is expensive in the long run either from attempt to supply the necessary plant to carry out the promise or, what is more likely, because the user becomes disgusted with the service which he gets.

This commercial man is certainly dealing with matters of transmission in this case.

Take the case of a traffic man assigning circuits for any given class of service. He is in a position to make or mar the success of the service as a whole by an improper use of the facilities at his disposal. In every case he should bear continually in mind the absolute necessity of assigning his very best circuits to the service having the most severe transmission requirements, and by very best circuits I mean very best from one end to the other. A common error which has come under my observation is the assumption on the part of those responsible for circuit assignment that the grade of the circuit is determined by the grade, say, of the open wire portion of the circuit. While this may be true in general, it is not universally true, and we have found in many instances cases of long haul circuits as-

signed in large gauge open wires but terminating in considerable lengths of small gauge cable conductors, with a net result that the transmission is poorer than it would have been if the circuit had been routed over smaller gauge open wires containing less lengths of cable or cable of larger gauge. In one case which I have in mind, rather an exaggerated case I will admit, where there was a general complaint of poor transmission it was found that the very best circuit on the group had been assigned for order wire use—this simply because those responsible for the circuit assignment did not fully appreciate what had been done. They had had some trouble about the passing of orders, and this particular circuit had been assigned in an attempt to clear up the trouble without investigating to see whether it could not have been done in some way which would not tend to destroy the earning capacity of the plant.

When we remember that a wet spider's web between two wires has an appreciable effect on the telephonic efficiency of a circuit, costing hundreds of thousands of dollars, it is easy to see that the equipment man responsible for circuit design can greatly impair transmission efficiency unless he uses continual vigilance. The wrong relay, the attempt to save a few cents in the cost of a piece of apparatus or a thousand and one little things may add to an avalanche which results in general complaint of poor transmission.

Transmission itself is such an intangible thing to most of us, while the saving of a dollar or two dollars on a cord circuit or a few cents on an insulator is so real that there is a very great temptation to practice that sort of economy, which in the long run is the wildest kind of extravagance. I can fully appreciate the temptation for I have it myself and it is one of the hardest things in the world for me to avoid making decisions to save a hundred, or a thousand or ten thousand dollars of real money in first cost at the expense of .1 or .2 of a mile in transmission on a number of individual circuits when I know perfectly well that the apparent saving has absolutely no justification when the business as a whole is considered. Each one of us, I take it, desires to do his job in the best possible way and one of the elements of this best possible way is, of course, the question of cost. As the elimination of a relay means the saving of real money, there is some explanation and possible excuse for the individual designer who proposes such a saving at the expense of transmission. There is no excuse, however, for the superior who permits this apparent saving without having first assured himself that it is a real saving and that equally good results from

an operating standpoint and without any transmission loss could not have been secured in some other way for the same expenditure.

In the outside plant department numerous instances might be cited where apparent savings are really a flagrant waste of money in the long run. One of the commonest and most plausible of these mistakes is the line of reasoning we employ when it becomes necessary or apparently necessary to replace open wire circuits with cable. Under these conditions it is common practice to make certain assumptions and determine that such and such a grade of cable conductor is in cost equilibrium with the particular gauge or gauges of open wires involved. This having been done, we are content to take down the open wires, put in the cable and think we have done a first rate job, forgetting that the actual transmissions has been impaired by the substitution and the potential earning capacity of the line reduced. This line of reasoning is correct enough if this latter factor has entered into our computations:—usually it has not.

I do not wish to be misunderstood as saying that the foregoing examples belong to a type where impairment in transmission can never be justified. In some cases such impairment will actually prove to be true economy, but this is the rather rare exception and not by any means the rule, and every such case should be carefully scrutinized before being approved.

In what I have said up to this point I have attempted to bring out the ways in which all of us are to a greater or less extent responsible for the establishment and maintenance of proper grades of transmission. I have not as yet touched upon the duties of the so-called transmission engineer and my conception of his relation to the other departments; that he is called the transmission engineer rather than something else is simply because his principal duties are concerned with the determination of transmission losses and gains in various parts of the plant and with advising as to how this, that and the other suggestion is likely to affect the general quality of the service furnished to the subscriber. Being called a transmission engineer, there is a great tendency to hold him responsible for each and every case of poor transmission which may arise. This is a rather natural tendency, although under the present organization a hardly excusable one.

I may be wrong in my understanding of what our existing organization contemplates but as I view the matter, the transmission engineer in an operating company should not be held personally responsible for every individual case of poor

transmission that may arise. He should be responsible for the presence of a type of plant which is inherently improper for the kind of service that has been decided upon and he will certainly be remiss in his duties if he does not use every endeavor in his power to bring about the replacement of the improper plant by plant of suitable construction. In cases, however, where the plant is theoretically suitable for the desired service, he should not be responsible for the misuse of this plant by the commercial, traffic or plant departments except in one important particular, namely, that of furnishing each of these departments with complete, proper advice as to how to use and maintain the plant at somewhere near its theoretical efficiency.

As I view it, the three important functions of the transmission engineer in an operating company are—

1. The determination of what can be done with different types of existing construction and equipment and the furnishing of suitable engineering advice regarding standards of transmission.

2. The giving of specific advice as to what is needed in any given installation to insure the desired grade of transmission at a minimum cost, due consideration being given to the future needs of the system as a whole.

3. The furnishing to each and every one of the operating department such rules and statements as will enable them to know how to perform their respective duties, so far as concerns transmission and in a general way what results are likely to follow certain classes of deviation from best methods.

A fourth duty which devolves upon the transmission engineer, although particularly upon the central transmission department, is the work needed to improve the transmission efficiency of various parts of the plant.

If the transmission engineer under the existing organization assumes more functions than I have outlined, he is, in general, taking upon himself responsibility for other people's work without the organization and equipment for effectively rectifying the trouble and absolutely necessary for any lasting success.

As matters stand at the present time, I am forced to admit that we transmission engineers are in large measure responsible for some specific cases of poor transmission because we have not furnished the proper maintenance and operating instructions to those whose duty it is to keep the plant up to one hundred per cent. efficiency. While there may be excuses for past errors of omission, we will attempt in the future to rectify this phase of the situation as rapidly as possible, and to you in Philadelphia I can only say that The Bell Telephone Company of Pennsylvania is to be congratulated on having in its employ a man of Mr. Mouradian's character and ability.

Until we have succeeded in placing in the proper hands those rules which will enable us to sit back in our chairs and say: "The plant in question should and can be made to give such and such results; if it isn't giving those results the responsibility is yours," we must expect to be called in, like lawyers, to clear up cases of trouble. Like lawyers, I presume that no one will want us except when they are in trouble, for I suspect that we are looked upon more or less in the light of cranks and butters-in; in fact, for a good many years we went under the designation of the "visionary department," for so long a time, in fact, as it took a chestnut to grow to be a fairly good sized tree.

Having made an admission of failure to do our full duty, I am not going to let the rest of you

off with that satisfied feeling which will cause you to ascribe every case of complaint to poor transmission resulting from remissness on the part of the transmission engineer. From time to time particularly aggravated cases of poor transmission come up and are given a most thorough consideration. While this consideration frequently discloses the presence of theoretically improper plant, I feel perfectly safe in saying that the great bulk of the trouble disclosed is traceable to errors in installation, assignment and maintenance, for which there is little or no excuse. A plant which theoretically should give, even with the most liberal allowances, not to exceed 30 mile transmission from subscriber's instrument to subscriber's instrument, is frequently found to give 40 or 45 mile transmission, and what does a careful investigation disclose?—frequently the presence of a receiver wired in the line, defective cords, improperly maintained batteries at P. B. X.'s, as well as local battery stations, the unrecorded presence of inefficient circuits for a considerable part of the distance, receivers with rusty pole pieces and bent diaphragms, open wire lines in poor maintenance condition and sometimes, in the case of private branch exchanges, operators' cord circuits, which have a habit of taking the transmitter current supply from the talking pair. Operators' sets are bad enough across a line in any event, and we are making every effort to devise a system which will provide the necessary operating features without giving the operator a chance to sandbag transmission, but they are certainly intolerable and inexcusable when so connected that they rob the talking subscriber of half his ability to talk.

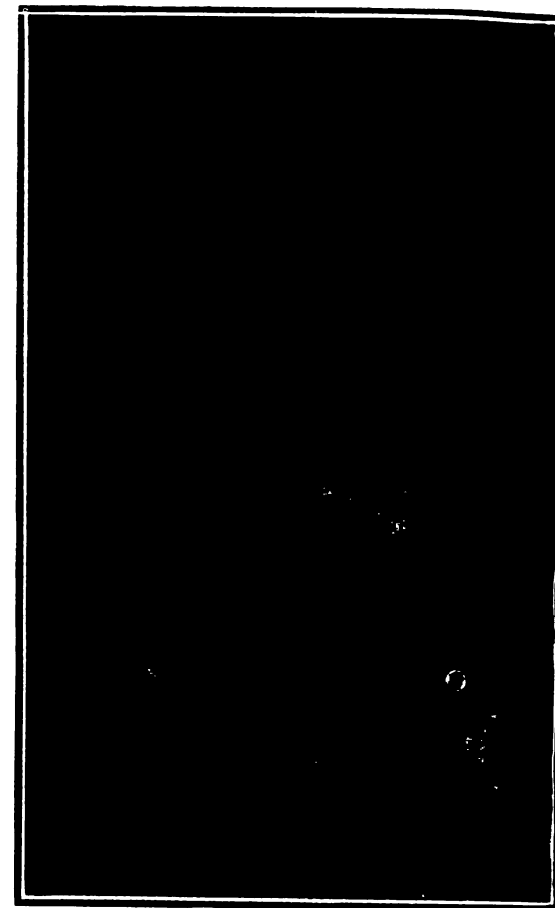
All of these things and many more, which violate the fundamental requirements for efficient transmission cannot be charged against any remissness on the part of the transmission engineer, nor can they usually be charged against any wilful attempt to impair the service. They are the result merely of carelessness on the part of a large number of people and that neglect of small things which is so characteristic of our national temperament, but which in the long run reacts so disastrously in many ways.

When I started in I had the intention of telling you something about the detailed work of the transmission engineer in connection with advances in the art of transmission, but I have used up so much time with what I have said that I fear your patience and good will are exhausted and that I will have to postpone that phase of the work until a possible future date.

Before thanking you for your attentive consideration of what I have had to say I merely wish to reiterate the conviction I have already expressed that each and every one of you must give some thought to the transmission aspect of your work if we are ever to have a really satisfactory universal telephone service. Knowing Mr. Mouradian as I do, I feel quite sure that he will be very glad to clear up any points concerning transmission matters that may be obscure.

A Telephone Term.

To the abbreviation O. K. various origins have been assigned. During the Andrew Jackson Presidential campaign it was said that it had been his way of approving proposed plans—"Oll Kerrect." Another origin, and perhaps a more likely one, is that it is the English abbreviation for the French term *Aux Cayes* (pronounced O. K.), meaning "From (the town) *Caves*," where was produced the best of everything—the best tobacco, the best liquors, etc. From that fame, *Aux Cayes*, or O. K., came to mean the approved, highest grade obtainable.



The Initiative of a Shamokin, Pa., Grocer

The accompanying picture shows the telephone display in the store window of The Allison Store Co., Grocers, 506 North Shamokin Street, Shamokin, Pa.

The window dresser of this firm, aided by commercial employees of this Company, arranged the display. It consisted of a section of counter covered with suitable material on which was placed a grocer's scales and several articles of merchandise to represent partly filled orders. A box of merchandise on the floor in front of the counter further carried out the idea.

The wax figure of a man dressed in characteristic grocer's attire was placed back of the counter in a pose representing him as using the telephone. A pencil was placed in his right hand as though recording an order. In the rear of the window were shelves carrying an exhibit of standard groceries. Sixteen desk stands were used, fifteen of which were placed in a row around the window just inside the glass, while the sixteenth was placed on the counter for the supposed use of the figure. The cords from the desk stands extended to a sign in front of the counter reading, "Fifteen Hundred Bell Telephones in this Vicinity Are All Doors to Allison's—Call 254-J."

Since becoming thoroughly acquainted with this company's method of "Selling Over the Telephone," an employee of the Allison Company calls residence subscribers every morning takes their orders and tells them about anything special that has been received.

This firm was furnished advertising matter such as the folders, "Lengthen Your Mornings," "Ready on Time," and so forth. On the back of these it stamped its own firm name, sending one out with every order, thus advertising Bell service and its own business at the same time. In this way our Company obtained a number of new prospects and six new subscribers, while the firm increased its business materially.

Telephone Societies

The Spare Pair Society

Dec. 14, 8 P. M. Sharp.

Parkway Building (Odd Fellows' Temple).
Philadelphia.

Subject: "Progress of a Line Order Through the Plant Department."

Speakers: H. R. Clegg, C. F. Street, A. MacFarland, H. Constantine.

At the regular monthly meeting of The Spare Pair Society, held in November at Odd Fellows' Temple, Philadelphia, papers on "Protection" were read by M. L. Lafferty, Kensington Wire Chief, and A. H. Bowen, Cable Foreman. The papers compared the present scheme of cable protection with that in use prior to 1909, when the Engineering Department's circular was issued substituting copper blocks for carbon in open-space cutouts, and eliminating fuses on aerial cable terminals. There was probably an excessive number of lightning storms in the summer of 1911, and it was brought out that the effect on the telephone plant was very different from that under the previous scheme of protection.

Mr. Lafferty showed that the amount of trouble to the Wire Chief and the cost to clear were considerably less, and that the trouble was of such a nature as to cause less service interruption than formerly. Mr. Bowen brought out the fact that the amount of cable trouble was considerably greater than under the previous scheme, that it was harder to clear because of its being more widely scattered through the cable, and that the length of time to restore service was greater.

An exceedingly interesting discussion followed the papers. Messrs. Jones, Kehl, Mott, Stewart, Blackman and Lafferty gave additional points showing the effect of the new scheme of protection from the Wire Chief's point of view; Messrs. Cunningham, Wood, Hilborn, Wurst and Bowen from the point of view of the cablemen. Mr. Wright outlined briefly the results obtained from the experimental installations made in the summer of 1909. Mr. Tuttle outlined the practice in the Pittsburgh Division, and indicated the line of reasoning followed in the Engineering Department to arrive at a conclusion as to the best scheme of protection. Mr. Porter dwelt upon the fact that the scheme of protection desired was one that would give the least total maintenance trouble, even though it might possibly increase a certain particular class of trouble. Mr. Meisel gave data showing that the figures furnished the Plant Manager's office seemed to indicate that the new protection scheme decreased the total maintenance.

In general, the discussion seemed to indicate that the new scheme probably was better from the standpoint of total maintenance and total interruption to service than the old, but that there is much room for improvement in the present scheme.

Camden Telephone Society

At the November 16 meeting T. B. McClain, District Manager, read his paper on "B. S." (Bell Service), covering the workings of the various departments of the Company. The duties of salesmen and of the desirability of good feeling between the Commercial and Plant departments were emphasized. Traffic was mentioned as perhaps the leading factor in our great organization. It was urged that all employees

should recognize their individual parts in facilitating the trying work of this department. A large attendance heard the address.

The Telephone Society of Pittsburgh

December 15, 1911.

Frederick Hall, 635 Smithfield Street.

Speaker: E. J. Speh, Supervisor of Supplies.

Subject: "The Betterment of Supplies."

On November 24 a very successful meeting of The Telephone Society of Pittsburgh was held in the Oliver Building. There were 356 members in attendance and a lively discussion followed the reading of papers on "Line Orders." E. C. Bates, J. H. Luckhart, C. G. Klocke and J. H. Cooper read papers on this subject.

The following participated in the discussion: J. D. Gordon, J. K. Martin, J. H. Moore, W. S. Ford, W. S. Van Liew, R. S. Kennedy, E. A. Wille, L. M. Dunn, all of Pittsburgh. In addition, Harry Hood, of Rochester; V. H. Dake, of Greensburg; J. B. Kittleberger and H. A. Brown, of New Castle; F. S. Morgan, of New Kensington, took part in the discussion. The society now has 503 members.

Reading Plant School

December 19, 1911.

30 Church Street.

Speaker: G. A. Cox, Engineering Inspector.

Subject: "Principles of Telephony."

The Cross Talk Club

At the December 12 meeting, held at Kugler's, Philadelphia, F. L. Devereux, Auditor, Long Distance Lines Department, A. T. & T. Co., addressed the members on "The Philosophy of Accounting."

The Baltimore Telephone Society

At the December 6 meeting the subject of H. B. Stabler, Plant Engineer, Washington, D. C.; was "Some Observations on the Progress of The C. & P. Telephone Company Since 1897."

The Telephone Society of Washington

At the last meeting of this society E. Corrigan the Baltimore Traffic Superintendent, in the course of his address described briefly his recent trip through the Western country. Upon the completion of his work in one of the cities the people with whom he had been working got up a farewell dinner in his honor. Everybody made speeches when called on, but it was only by dint of much persuasion that one old chap could be induced to get up. He paused a moment, looked hard at Mr. Corrigan, and then with a twinkle in his eye said: "Young fellow, here's all I've got to say—you are the first blamed Easterner that ever got a dinner out of this bunch." Then he sat down.

The Delaware Telephone Club

The Delaware Telephone Club, an organization composed of the department heads of the Delaware & Atlantic Company and the Diamond State Company, held its second annual dinner at Hanna's Cafe, Wilmington, on the evening of November 13.

Although the organization is in its infancy, the results as described in the addresses by the members are most gratifying. E. P. Bardo acted as toastmaster and several addresses were made. An excellent menu was served.

The Philadelphia Telephone Society

At the December 5 meeting of this society Article II, Section 2, of the Constitution was amended admitting employees of the Western Union Telegraph Company to membership.

Comments on Mr. England's paper were made by J. Cunningham, G. H. Warren, Special Agent, A. T. & T. Co., in charge of obtaining rights of way and franchises along the Wilmington-Washington subway; J. S. Francis and P. G. Burton.

Organization Changes

A. deB. Robins has been transferred from the Traffic Engineer's office, Philadelphia, to be Traffic Supervisor, Germantown and Ogontz districts.

H. W. Dean, formerly Traffic Supervisor in the Filbert, Walnut and Dickinson districts, is now in the Traffic Engineer's office, 1230 Arch Street.

T. Wistar, Jr., is now Traffic Supervisor of the Filbert, Walnut and Dickinson districts.

Name	Position	Location
Geo. Gallus.....	Carpenter to Roofing Foreman	Philadelphia.

The Central District and Printing Telegraph Company

F. E. Stewart.....	Salesman to Local Manager	Butler Dist.
J. G. Webb, Q. Grube, G. Jenks and E. Mead...	Groundmen to Linemen	Pittsburgh.
J. B. McAnallen..	Repairman to Foreman	Greensburg, Pa.
L. R. Gahagen....	Wire Chief to Plant Chief	Fairm'nt, W. Va.
Bruce Kelly.....	Repairman to Wire Chief	Grafton, W. Va.
J. F. Gordon....	Ass't Foreman to Foreman	Pittsburgh.
Albert Bolen....	Repairman to Field Engineer	Greensburg, Pa.
M. B. Harrold....	Repairman to Wire Chief	Greensburg, Pa.
J. H. Harbison...	Repairman to Wire Chief	Wheel'g, W. Va.

Letter from the Associated Press

A belated letter received in Pittsburgh shortly after the Austin, Pa., disaster, is here reproduced.

THE ASSOCIATED PRESS.

PITTSBURGH, Nov. 8. 1911.

MR. J. W. GEORGE,
District Plant Superintendent,
Pittsburgh, Pa.

DEAR SIR:

I desire, in behalf of the Pittsburgh Bureau of The Associated Press, to thank you for the excellent service given by the long distance department of your company to this office the night of September 30, and more particularly to call your attention to the splendid work of Miss Anna Coultas, night chief long distance operator, whose untiring energy and unflagging zeal were of the utmost importance to the Associated Press in covering the disastrous flood at Austin, Pa.

At no time during the long and tiresome hours of that eventful night did the chief operator fail us. When it was necessary to secure connection with the stricken town, and it was necessary every few minutes, she invariably found a wire in what our experience has taught us was remarkably short time. The service was all that could have been asked in ordinary circumstances, and when the difficulties encountered are considered I look upon Miss Coultas' performance as nothing short of phenomenal.

I am writing this in order that you may know our appreciation as well as to give credit where credit is richly deserved.

Very truly yours,
(Signed) W. C. CONNELLY, JR.

L. W. GRISWOLD, Division Correspondent

Mr. J. H. Moore:-
Cashier C. D. & P. Tele. Co.

Enclosed you will please find check with signature affixed, it is that I was so busy to see if there was enough to cover the \$ 2.25 I forgot the name that makes it good; it won't happen again.
Yours truly

Nov. 23 1944

One of the latest newspapers in this district to adopt the telephone as the means of receiving news from the outside world is the *Butler Eagle*.

A Western Union collector who called on a non-subscriber to collect a telegram account mentioned the fact that if she had Bell service she could transmit all messages via telephone, and that all bills for telegrams would appear on her

Bell Telephones, Union Station, Pittsburgh

H. K. Sarver, District Salesman, has succeeded in changing the last farmer line connected to our Corry, Pa., exchange to a Plan "A" company. This line is called the Springcreek Road Telephone Company, and consists of 15 subscribers.

ANTHONY.

Our exchange at Saltsburg, Pa., has been enlarged by the addition of 50 lines on our present switchboard.

Pittsburgh Depot Telephones

The telephone booth installations at the Union Station in Pittsburgh have undergone a complete change within a few months. Formerly a switchboard known as the special hotel type, was connected with four booths. This has been replaced by a special two position board connected with eight booths. Four of the public telephones are equipped for all night service. The space occupied by the new installation is about twice as large as that formerly used and the specially designed booths and woodwork are attractive and in keeping with the interior fittings of the station.



Former Installation, Union Station, Pittsburgh

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